THE DOCK & HARBOUR AUTHORITY

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Editorial Comments.

DEVELOPMENT OF COCHIN HARBOUR.

The bar in the Cochin Harbour, it is announced, has been cut across to allow the free entry of ships into the harbour, and this development forms the subject matter of this month's Supplement.

The history of the development of the Cochin Harbour is a long and continuous struggle of man trying to overcome Nature. For close upon a century various efforts had been made to open out a harbour in this place. The Cochin Chamber of Commerce persistently advocated the construction of a deep water harbour. During the visits of Lord Curzon and Lord Kitchener in 1900 and 1911, the question was reopened, but nothing definite was done till 1920, when Lord Willingdon, then Governor of Madras, succeeded in getting the approval of the Government of India to the scheme. Mr. R. C. Bristow, who was on the permanent staff of the British Admiralty, was appointed as Harbour Engineer-in-Chief to investigate and undertake, if possible, the execution of Cochin, as well as Tuticorin Harbours.

The possibility of opening out this harbour depended upon dredging a channel in open sea 3¾ miles long through the bar, keeping the channel free from silting and the protection of the low-lying parts of the sandy beach which form the natural breakwaters to the harbour and upon which the sea has been encroaching for many years.

Mr. Bristow, within a year or two of his appointment, succeeded in stopping the long continued erosion by the construction of a series of stone groynes, and constructed a dry dock capable of taking all the dredging vessels in South India. In 1924 the advisory committee appointed by the Government of India approved of Mr. Bristow's proposals and the project received sanction in May, 1925.

The project which was estimated to cost a little less than Rs.45 lakhs made provision for dredging a channel approaching the port and through the bar, the dredging of 129 acres of mooring space inside the harbour to a depth of 30 feet at low water and making a reclamation of 150 acres in the middle of the backwater. The failure, in the first year of operation, of ball joints connecting up the pipeline caused some delay in dredging operations, but this was soon remedied by specially made materials from England and work was again begun with redoubled vigour. In two working seasons the dredger "Lord Willingdon" completed the dredging of the outer bar and mooring area, setting up a remarkable record, which had not been approached anywhere else in the world both for output and economy. The channel through the outer bar has now been made 17,000 feet long by 450 feet wide by 35 to 37 feet deep. The dredging of the mooring area has been completed and this, with the deep water already available, gives the port about 250 acres of deep sheltered water most of which is as calm as a lake, even in the roughest monsoon weather. At present there is mooring space for 34 vessels in deep water.

The Harbour Engineer-in-Chief has recently submitted two reports, one dealing with the amount of silting and the second with the total cost of the works. Owing to the doubling of the quantity of dredging inside the harbour and the corresponding increase in the mooring area, the final estimate comes to something less than Rs.56 lakhs. The next stage of the scheme comprises the erection of wharves with railway communications and usual port premises for which, it is said, estimates are being prepared.

An examination of the general effect on the trade and commerce of South India by the opening of the Cochin Harbour will provide interesting reading. Cochin Harbour by reason of its proximity to Europe, will be the only natural port of South India. Steamer journey to and fro from Europe can be accomplished in four or five days less time either way from Madras. There will be a tendency for traffic in the Madras Presidency to be drawn westward. It will lead to the development of certain unproductive areas, as soon as the proposed railway communications are established. The harbour will serve a hinterland which is very fertile and till now had no proper outlet. It will carry trade from western parts of the Madras Presidency, the Mysore State and the Kerala Native States. Planting districts on the West Coast will be enabled to compete more successfully in world markets, on account of the low freight charges.

The Cochin Harbour will be the most sheltered harbour in the East and the area available for mooring will accommodate all the navies of the world. Mails intended for South India can be sent direct to Cochin. The harbour will also be useful as a port of call, thus relieving Colombo, as a coaling, watering and repairing base.

THE PORT OF LONDON AUTHORITY.

By the courtesy of The Institute of Transport we are able to reproduce in this issue a paper by D. J. Owen entitled "The Port of London Authority—A Survey of Twenty Years' Work and Trade," and the facts and statistics which are related should prove of considerable interest to our readers.

LIVERPOOL DOCK TRAFFIC RETURNS.

According to the annual statistics of the Mersey Docks and Harbour Board covering trade of the port for the year ending July 1st last; there was a decrease in the number of vessels entering, but only in one instance has there been a decrease in the tonnage using the port. In regard to the vessels paying dock tonnage rates, foreign going vessels numbered 3,881 of 13,302,519 tons net, which is an increase of 278,125 tons over last year's figures; coastwise vessels numbered 9,545 of 2,250,585 tons net, an increase of 28,808 tons. Of vessels paying harbour rates only, foreign going ships numbered 1,809 of 3,570,259 tons, an increase of 306,983 tons, compared with last year; and coastwise vessels were 5,330 of 1,398,543 tons, which is a decrease of 21,848 tons. The total of the tonnage using the port was 20,583 vessels of 20,521,906 tons, which shows an increase of 363,406 tons over last year's total. This is the total of the tonnage paying rates to the Dock Board inwards or outwards, so that to arrive at the total tonnage which entered and cleared during the year, the figure should be approximately double, making the total 41,043,812 tons. The receipts are divided into rates received on vessels and rates and dues on goods. Under the head of the former are included dock tonnage and harbour rates, foreign and coastwise, which amounted to £1,563,335, which is an increase of £80,830 over last year; the principal item in this total is the dock tonnage rates on foreign going vessels, which amounted to £1,440,352, which shows an increase of £90,715. Other items included in the rates on vessels are graving dock and gridiron rates, £53,727, a decrease of £820, and dock rent £12,582, an increase of £1,826. The total dock rates received on goods amounted to £661,870, which shows an increase of £8,481 and includes £518,864 foreign inwards, an increase of £5,555. The total rates on vessels paid was £1,634,645 (an increase of £81,837), and on goods £1,221,198 (an increase of £9,342), making the total receipts of the Board for the year £2,855,843, which is £91,179 more than in the previous year.

North-East Coast Notes.

The River Tyne prides itself upon having the lowest dues of any first-class port, and the Tyne Commission at their meeting in June made a decision which will further strengthen their claim to be so regarded. At that meeting Mr. Francis Priestman presented the report of the Finance Committee, which contained the following recommendations respecting de-rating concessions:—

(1) The withdrawal of the percentage increase of 50 per cent. at present levied on the dues chargeable on vessels passing either way through the Swing Bridge, at an estimated cost in a full year of £17,574.

(2) The withdrawal of the percentage increase of 50 per cent. at present levied on the dues chargeable on goods shipped on vessels in the Tyne, at an estimated cost in a full year of £3,809, as from July 1st.

(3) That the percentage increase of 50 per cent. on the dues at present levied on vessels using the Commissioners' docks and staiths be reduced to 40 per cent., at an estimated cost in a full year of £2,528; and

(4) That the present percentage increase of 50 per cent. on river tonnage dues on vessels be reduced to 40 per cent. on vessels using the port below bridges, at an estimated cost in a full year of £5,487 as from October 1st next.

The Chairman (Sir William Noble) declared that the concessions made by the Tyne Improvement Commission in dues since 1922 amounted to £1,600,000, which was equal to £250,000 or £300,000 a year.

TO ENCOURAGE INDUSTRY.

They regarded the proposed present reductions as an important gesture—something that would give encouragement to the industries on the river, and help them to go forward and develop their work. They did not want to take out of industry more than was necessary to carry on the work of the port. They wanted to make the Tyne cheap and thoroughly efficient. No harbour authority could carry on its work without surpluses, and since the Commission was established in 1850 they had paid out of surplus revenue more than half the capital expended, which totalled £7,500,000.

Regarding the four proposals, Sir William said they agreed unanimously to the first three, but opinion was divided as regarded the fourth, the proposal to take 10 points off the 50 per cent. addition in dues on vessels using the lower reaches of the river. This raised an important point of principle, as the Commission had not hitherto differentiated between the lower and the higher reaches of the river. It had been urged that any concession made on tonnage dues should be on the whole of the river and not a part. A short discussion resulted in the latter proposal being referred back to the committee for further consideration, while the other suggestions were unanimously adopted.

A similar topic was before the Trade and Commerce Committee of the Newcastle Corporation in July, arising out of the Derating Act, which provides that the quay undertaking of the Corporation shall make reductions in charges corresponding to the approximate amount of the rate relief granted under the Act. The reductions suggested by the sub-committee, summarised, are as follow: Wharfage dues, £1,900; package dues, £1,240; package dues coastwise, £480; passenger tolls, £420; quay dues, £820; craneage charges, £170; total, £5,030.

COAL TRADE EXPANSION.

The steady expansion of the coal trade of the North-East Coast is cause for great satisfaction. The official figures for the half-year promise to be exceedingly good. On the Tyne the shipments of coal and coke for the week ended June 15th totalled 423,468 tons, the highest figure since 1924, and for the past six months of this year the total was 9,493,638 tons, compared with 7,777,255 tons for the corresponding period last year, an increase of 1,716,383 tons—22 per cent. more. This output is only 340,662 tons below the pre-war shipments of 1913.

At Blyth, too, the five months' shipments were good at 2,251,241 tons, an increase of 18 per cent. on 1928, and 17 per cent. on the figure for the last pre-war year, 1913. Mr. Ridley Warham, the chairman of Blyth Harbour Commission, in congratulating the members on the improvement, pointed out that there was also an improvement in general trade, timber imports showing an increase.

Additional aids to navigation at the mouth of the Tyne, recommended by the Harbour and Ferry Committee, were agreed to by the Tyne Improvement Commission at the meeting already referred to. They were:—

(1) That a white flashing automatic light be exhibited from a pole on an independent dolphin placed inside the river end of the Commissioners' No. 1 groyne, North Shields, and in front of Lloyds' hailing station, at an estimated cost of £500;

(2) That the sector of the North Pier light showing up the harbour be dimmed; and

(3) That the unlighted Herd Sand buoy be replaced by a red flashing lighted buoy, at an estimated cost of £850.

BERGEN—NEWCASTLE SERVICE.

It is interesting to note that the Norwegian Storting has adopted the proposal to make a contract between the State and the Bergenske Dampskibsselskap in connection with the Bergen—Newcastle service. It is reported that the contract will be for a period of six years and provides for an increase of 200,000-kr. in the annual Government grant of 510,000-kr. (including mail subsidy) to the Bergenske Company on condition that the company places an 18-knot vessel in the service. It is expected that the vessel will be delivered in May, 1931.

The Tees-side Chamber of Commerce are making strong representations to the London and North-Eastern Railway as to the need for better dock facilities at Middlesbrough, the present accommodation being stated to be quite inadequate. At the meeting at which this decision was reached it was pointed out also that the cargo rates to Australia were much higher from the Tees than from Glasgow, the freight from Middlesbrough to Melbourne being 5s. 6d. per ton more than from Glasgow. The matter was referred to the Shipping Committee.

PERSONALIA.

When the Baltic and International Maritime Conference was held in Newcastle, Mr. W. A. Souter, the well-known Northern shipowner, was elected president.

Mr. George H. Wright has been appointed general manager of Messrs. Swan, Hunter, and Wigham Richardson's Neptune Engine works, Walker-on-Tyne. Recently he practised as a consulting marine engineer at Liverpool, but before that was with Parsons Marine Steam Turbine Company.

Mr. Alfred Harding, who was in the service of the London and North-Eastern Railway for 24 years, the last five of which were spent as superintendent at Tyne Dock, relinquished that post recently to become chief traffic manager at the Lambton, Hetton, and Joicey Collieries.

Sir William J. Noble, Bart., chairman of the Tyne Improvement Commission, at the end of June invited members of the river authority, the chief officials, and the staff to a garden party at Meldon Park, where he is residing pending the rebuilding of Kirkley Hall, his residence near Ponteland, which was recently destroyed by fire.

Port Dues in Yugoslavia.

Prevailing Rates of Exchange.

The Department of Overseas Trade has received from the Commercial Secretary at Belgrade the following list of official rates of exchange for the payment of port dues in Yugoslavia during the month of July, 1929, which have appeared in the "Official Gazette" of 27th June:—

	Dinars.
1 Gold Napoleon	218.00
1 Pound Sterling	276.20
1 American Dollar	56.85
1 Canadian Dollar	56.60
1 German Mark (Gold)	13.60
1 Belga	7.91
100 French Francs	223.00
100 Italian Lira	298.50
100 Dutch Florins	2286.00
100 Roumanian Leis	34.00
100 Danish Crowns	1516.00
100 Swedish Crowns	1525.00
100 Norwegian Crowns	1516.00
100 Spanish Pesetas	800.00
100 Drachmas, Greek	74.00

Personal enquiries regarding shipping and transport matters should be made at the City office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

HAMBURG SHIPPING TRAFFIC IN JUNE, 1929.

A report received by the Department of Overseas Trade from His Majesty's Consul-General at Hamburg states that as compared with the previous month there was a decline in the total tonnage entered at the port of approximately 80,000 tons, mainly accounted for by the decline in tonnage entered with cargo, and there was also a fall of 66,000 in the total tonnage cleared.

British shipping in June amounted to 225 vessels (391,790 tons) entered and 224 vessels (386,709 tons) cleared, compared with 231 vessels (444,430 tons) entered and 229 vessels (461,250 tons) cleared in May.

German tonnage in June amounted to 861,113 tons entered (850,525 tons in May) and 842,303 tons cleared (855,073 tons in May).

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The Port of New Orleans.

NEW TRADE ROUTE TO EL SALVADOR.

Opportunity for a large increase of trade with the Republic of El Salvador through the port of New Orleans as a result of the new railroad line which connects San Salvador on the Pacific Coast with Port Barrios, Guatemala, are explained in an article by Assistant Trade Commissioner Robert M. Lane in a recent issue of "Commerce Reports." The article states that in 1928, when El Salvador's imports amounted to $19,000,000, approximately 50 per cent. came from the United States. The possibilities of the new trade route are explained as follows:—

"Previously the distance, in both time and actual mileage, from Santa Ana to Gulf ports of the United States was nearly as great as from Liverpool to Santa Ana. In all, the actual transport time approximated 18 days, and, in addition, delays were practically necessary for connections. Merchandise from New Orleans, for example, had to pass through the canal and along the Pacific Coast to Acajutla, and thence by rail. The new line will enable shipments to be made in less than half the time previously required—an advantage that should be of material assistance to American exporters."

APRIL EXPORTS THROUGH NEW ORLEANS.

Merchandise exported through the port of New Orleans in April, 1929, was valued at $31,674,285, according to the report of the U.S. Bureau of Foreign and Domestic Commerce, an increase of $1,518,494 over the value of exports for the same month of 1928. The total increase of export values at New Orleans for the first four months of the year, as compared with the same period of last year, amounts to over $14,000,000.

Among the principal commodities exported in April were: 186,027 lbs. of cured hams, 179,208 lbs. of bacon, 137,479 lbs. of pickled pork, and proportional quantities of other meats; 6,535,778 lbs. of lard, 699,918 lbs. of condensed and evaporated milk, 162,123 lbs. of canned shellfish, 48,446 pairs of shoes, 922,651 bushels of corn, 86,392 bushels of oats, 283,766 lbs. of oatmeal, 8,517,505 lbs. of rice, 131,370 barrels of wheat flour, 7,530 barrels of resin, 112,323 gallons of turpentine, 11,402,712 lbs. of tobacco, 85,244 bales of cotton, 4,987,028 square yards of various cotton piece goods, large quantities of manufactured cotton apparel, 1,589,361 lbs. of jute bags, 509,524 linear feet of piling, 56,209,000 board feet of sawn pine, redwood, ash, birch, cottonwood, gum, hickory, oak, poplar, walnut, and mahogany timber and boards, 2,208,744 cooperage staves, 90,754 sets of cooperage shooks, 2,163,526 square feet of veneers, large quantities of other manufactured goods, 3,955,819 feet of wall board, 1,420,574 barrels of gasoline, 281,729 barrels of illuminating oil, 124,114 barrels of gas oil, 29,091 barrels of lubricating oil, 6,961,598 lbs. of refined paraffin wax, large quantities of steel and iron manufactures, 5,227,192 lbs. of carbon black, and important quantities of hardware, implements, furniture, machinery, and manufactured goods of all kinds.

APRIL IMPORTS AT NEW ORLEANS.

The value of foreign merchandise imported through the port of New Orleans in April, 1929, was $21,731,823, or $2,599,906 greater than the imports of the same month of 1928, according to the compilation of the bureau of foreign and domestic commerce. The total foreign trade of the port for the month, imports and exports, amounted to $53,406,108, an aggregate increase of $4,118,400 over April, 1928.

Among the leading import commodities were 2,198,672 bunches of bananas, 35,845,155 pounds of coffee, 17,890,051 pounds of Philippine cane sugar, 170,449,808 pounds of Cuban cane sugar, 3,288,841 pounds of cocoanut oil, 8,960,000 pounds of palm kernel oil, 1,768,679 pounds of sugar beet seed, 6,187 tons of sisal, 894,113 barrels of crude petroleum, 235,217 barrels of gasoline, 4,453 tons of sodium nitrate, 1,823,314 gallons of creosote oil, 2,318 tons of muriate of potash, 16,914,714 pounds of jute burlaps, 343,000-ft. of mahogany logs, 2,786,800 pounds of cork insulation, 1,674 tons of manganese alloy, 26,625 tons of bauxite aluminium.

NEW ORLEANS SHIPPING FOR JUNE, 1929.

There were 263 arrivals of deep-sea vessels at New Orleans in June, 1929, with aggregate gross tonnage of 1,035,983, an increase of 20 in the number of vessels and of 181,651 in their gross tonnage, as compared with June of 1928. Seventy per cent. of this shipping used the public wharves, over which were moved approximately 400,000 tons of merchandise. This does not include the traffic of refineries and private wharves. Imports of bananas through the public conveyors were 2,021,069 bunches.

The movement of inland water-craft on the Mississippi remained practically unchanged, arrivals of vessels of over 25 tons amounting to 245 barges, steamboats and other craft, with tonnage of 92,072.

The inner harbour navigation canal was used by 754 vessels of all descriptions, with tonnage of 335,459. These included ocean steamships, Mississippi-Warrior barges, and smaller craft. Arrivals of deep-sea vessels in the harbour during June were as follows:—

Flag.	Number.	Gross tonnage.
American	146	643,832
British	10	48,925
Brazilian	2	9,527
Colombian	1	2,054
Cuban	1	1,336
Danish	6	15,568
Dutch	4	26,146
French	5	33,242
German	6	20,206
Honduran	30	83,226
Italian	6	36,327
Japanese	1	9,482
Norwegian	33	82,700
Nicaraguan	6	9,346
Panaman	2	1,336
Spanish	1	4,202
Swedish	3	8,528
Total	263	1,035,983

COTTON WAREHOUSE TARIFF REDUCED.

The new tariff of the Public Cotton Warehouse, issued by the Board of Commissioners of the Port of New Orleans, shows material reduction in rates, a saving of from 8 to 42 cents a bale as compared to the former tariff, depending on time and conditions of storage and services required. Material increase of the cotton movement through New Orleans is expected to result from these reductions.

Reconstruction of the St. Andrew Street Wharf under way. Raising of the levee, extension of the shed, construction of a reinforced concrete floor, and other betterments involve an outlay of perhaps $800,000 by the dock board and levee board.

DRY DOCKS TOWED FROM NEW YORK.

Two dry dock sections, each 80-ft. long by 116-ft. wide, arrived July 1st at the New Orleans plant of the Todd Engineering, Dry Dock and Repair Company, after a tow of 1,958 miles from New York. Leaving New York Harbour on May 25th and 28th, the two tows required 43 and 40 days respectively for the voyage. The lifting capacity of the two sections is 4,000 tons, a capacity to be increased with the addition of other sections at a later date. The Todd organisation has spent approximately a million dollars in construction and equipment for their new repair plant on the right bank of the river, where the docking facilities are being installed.

NET TONNAGE IN FOREIGN TRADE.

Figures published in the July issue of the "Marine Review," showing the net register of shipping entered and cleared direct in foreign trade at the leading ports of the United States, show that while New York leads all ports of the country, for the first ten months of the fiscal year, New Orleans, as second port, is far ahead of all others. The totals for the ten months were as follows:—

	ENTRANCES.		CLEARANCES.	
	No. of ships.	Net tonnage.	No. of ships.	Net tonnage.
New York	5660	24,713,434	5801	25,121,572
New Orleans	2664	7,095,702	2749	6,748,966
San Francisco	1658	6,194,439	1567	5,949,212
Los Angeles	1843	5,482,195	1834	5,306,756
Baltimore	1343	4,120,358	1374	4,201,846
Boston	1106	3,261,484	763	2,243,360
Seattle	587	2,411,816	618	2,534,065
Philadelphia	1010	2,772,368	608	1,663,664
Galveston	380	1,005,167	963	3,041,844
Mobile	916	2,054,948	794	1,874,974
Portland (Ore.)	356	1,350,190	532	1,941,349
Norfolk-Newport News	212	562,652	750	1,965,030

The Baltic and International Maritime Conference.

Annual Report for 1928-1929.

THE WORLD'S SHIPPING AND TRADE.

THE following report covers the 24th year of the activities of the Conference. It is too much to say that during the past year shipping has returned to its own, but employment of tonnage has been better and there has been a more general demand from widely differing sources. This is certainly a good sign, but it is not enough, and either freights must be improved or working costs must come down before shipping can enjoy anything like a fair measure of prosperity. The supply of tonnage is still in excess of the demand, but, in spite of this, the building of new tonnage has been continued on a very large scale. The world's trade is settling down year by year, and, although the movement is very slow, trade is expanding in nearly all directions.

If the world's economic powers should be characterised, it can be said that the world is on the way to political and economic stability.

PRESIDENCY.

At the Annual General Meeting in Hamburg Mr. John Denholm, Greenock, was re-elected President of the Conference.

At the same meeting the following gentlemen were re-elected vice-presidents: Rear Admiral Hans Ericson, Stockholm, Mr. Phs. van Ommeren, jun., Rotterdam, and Mr. Chr. Sass, Copenhagen. Further, two new vice-presidents were elected —namely, Mr. A. F. Klaveness, Oslo, and Mr. M. Böger, Hamburg.

One of the founders of the Conference, and President during the early years, Consul-General Johan Hansen, Copenhagen, was elected honorary president, and Mr. William Hansen and Mr. Heinrich F. C. Arp, Hamburg, who were also pioneers and past vice-presidents, were elected honorary vice-presidents.

CHAIRMAN.

There has been no change in the chairmanship of the Executive Committee and Documentary Council, Mr. Otto Hillerström, Helsingborg, and Mr. Willie C. K. Hansen, Copenhagen, respectively being re-elected.

MEMBERSHIP.

This year there has been a further increase in the tonnage entered in the Conference of about 500,000 gross registered tons.

CONFERENCE NEW RULES.

The new rules of the Conference were adopted at the Hamburg General Meeting. One of the most important alterations was the one affecting the Documentary Council. It should be said that this has proved to be a fortunate innovation. Under the old system the Documentary Council was a separate body with its own code of rules. The system was rather complicated and caused confusion. Now that the Conference and Documentary Council have been joined more closely together the constitution has been simplified.

CLUB MEMBERS.

The new rules provide for entry as Club Members of Protection and Indemnity, Freight, Demurrage and Defence Associations, Shipping Federations, and other combinations of shipowners. As a result of the growing feeling of the value and necessity of the closest co-operation between the club interests in the United Kingdom and on the Continent it is gratifying to record that there has been a considerable influx of new members as far as British and Continental Protection and Indemnity Associations, as well as Shipowners' Associations, are concerned. These associations are Club Members of the Conference and thereby members of the Documentary Council, and through this membership the co-operation between the Conference and these associations has been strengthened, not only on matters affecting documentary work, but on all matters of interest to shipowners.

TRADE BARRIERS.

Although the trade of the world is slowly recovering, the freedom of international trade and commercial prosperity are still hampered by artificial restraints. High tariff walls and unnecessary interference by Governments and other authorities tend to put difficulties in the way of a sound recovery of trade. At Hamburg a resolution was passed urging the necessity of adopting the recommendations of the World Economic Conference with regard to trade barriers and appealing to all owners by vigorous propaganda to lend their support in this important matter.

SPANISH CUSTOMS FINES.

One of these artificial restraints—namely, the way in which the Spanish authorities treated foreign vessels when the customs regulations had been infringed—was the subject of another resolution at the Hamburg meeting. It was emphasised that the fines were out of all proportion to the errors made, and in several instances were so heavy that their enforcement must be considered as confiscation of foreign property and contrary to the law of nations. The meeting declared that the many encroachments hampered the peaceful commercial intercourse between Spain and other countries, and that they were inconsistent with the Convention relating to customs formalities of 1923, to which Spain was a signatory. It is gratifying to state that the Spanish authorities have, to a certain extent, paid attention to the statements of the Conference, and that the regulations regarding timber cargoes have been modified. It also appears that a more lenient attitude on the part of the Spanish customs authorities can be expected in the future.

STATE-OWNED SHIPS.

The Conference has declared its adherence to the principle that State-owned ships commercially employed should be subject to the same jurisdiction and liabilities as other ships. Since this important matter was taken up the attitude of the countries carrying on trade with State-owned vessels has in many cases been changed to one of surrender to civil jurisdiction, but the question has so far not been dealt with by an international Convention, and the law on this point is still very complicated and not uniform.

STATE FACILITIES TO SHIPBUILDING.

Although the tonnage available for the world's trade is still in excess of the demand, certain Governments persist in giving assistance for the building of new ships. If this new tonnage, encouraged by artificial assistance, continues to be added to the already over-burdened market, the hope of getting out of the Slough of Despond is bound to be reduced. The Conference has already dealt with this problem on previous occasions, and its attitude has been reaffirmed. It has been emphasised that the interest of international trade requires that the policy of State facilities for shipbuilding be discontinued.

CO-OPERATION WITH OTHER ORGANISATIONS.

Co-operation between the Conference and the International Chamber of Commerce has been strengthened and extended, and a Conference delegation took part in the fourth International Shipping Conference.

In matters concerning labour assistance has been given by the International Shipping Federation.

In the discussion regarding world telegraphy the Conference made representations to the International Telegraph Union.

The connection with the League of Nations has been upheld in matters of mutual interest.

There has been extensive co-operation with national Shipowners' Associations and also with Protection and Indemnity Clubs. Mention has already been made of the number of clubs which have joined up as members of the Conference, and this arrangement leads us to anticipate pleasant relations in the future.

The chapter on co-operation cannot be closed without some mention of our friends, firms, and individuals, all over the world, who so promptly and willingly respond to enquiries made by the Conference whenever it is necessary to draw upon their knowledge and experience. When investigations have to be made, they are greatly facilitated by the goodwill and support of these correspondents.

ASSISTANCE RENDERED BY THE CONFERENCE.

There is an ever-increasing demand on the part of members of the Conference for assistance and advice, and, with the very extensive and complete archives in which is accumulated experience of owners as well as reports from correspondents in most corners of the world, and other material, the Conference is able to render valuable service to those who avail themselves of the opportunity. This system of interchange of experience and opinions should be still further developed, and it should be remembered that the more the members keep in touch with the Conference the more complete will its service be.

INFORMATION BUREAU.

As the work of the Information Bureau is a reflex of the multiple experiences of the shipowner in his daily business, it must necessarily be of a somewhat kaleidoscopic nature, and the annual report can give a brief outline only, but little or no impression of the extent of the work.

About 50 out of approximately 900 subjects actually dealt with during the year have been chosen for reference. The 900 subjects cover a total number of letters received and despatched of about 9,500, exclusive of telephone inquiries, of which no record is kept. A large part of the correspondence was exchanged with what may be described as " the other parties "—namely, brokers, stevedores, merchants, and their organisations, including Chambers of Commerce, and with various authorities. The friendly relation established with such parties is a gratifying proof of their realising that it is in their interest no less than in the interest of shipowners to substitute sound and equitable conditions for those which give rise to complaints.

In addition to the activities described in the foregoing, the Information Bureau Circular and various special circulars were issued. The matters dealt with therein were partly a summary of questions of general interest and partly information collected concerning difficulties arising and alterations in the conditions prevailing in the various trades and ports.

The same lines as last year have been adopted as far as possible in compiling the report. The questions have been divided under the following headings:—Stevedoring, Port Conditions, Agency Business, Miscellaneous, and General Observations.

STEVEDORING.

Labour conditions were unsettled in several countries in 1928, with the result that wages were increased and consequently also the cost of loading and discharge.

The Information Bureau does not intervene in questions which purely concern the labourers' wages in the different countries. Although shipowners are interested in keeping all cost down on the lowest possible level, they are equally interested in staisfactory labour conditions which will attract a good class of labour to the ports, and thus ensure a satisfactory despatch and a careful handling of cargoes.

Activities were therefore confined to ascertaining whether the total prices with which vessels were debited could be considered reasonable on the basis of the wages paid to the men, and protests were made in every case where it was established that middlemen, whether stevedores, brokers, merchants, or others, exploited the prevailing conditions to their own advantage by including in their prices a margin of profit which had no reasonable relation to the services rendered by them.

FINNISH STRIKE.

The development of the situation which arose in Finnish ports owing to the strike of stevedore labourers, which was declared in June, 1928, and which did not terminate before April, 1929, was carefully watched. Members were advised from time to time of the extra cost which would be incurred when loading and discharging in the ports where the strike was in progress, and warnings were issued against too optimistic estimates of the despatch which might be reckoned with on the basis of promises held out, but not always substantiated on the part of charterers. The intake of wood cargoes also suffered owing to the lack of skill of the newly recruited labourers.

Numerous complaints concerning despatch and overcharges had to be investigated, and general questions to be discussed with the two recognised organisations of stevedores, the Association of Finnish Stevedores and the Federation of United Finnish Stevedores.

The main points of contention were the basis on which the maximum addition of 25 per cent. allowed to the stevedores according to the tariffs in case of strikes should be calculated, and whether labour insurance should be charged also on the strike addition.

According to the wording of the tariffs, the strike addition should be added to the basis prices enumerated in the tariffs, but certain stevedores maintained that it should be added to the total of the stevedoring account, including overtime, standing by, etc. As the extra cost thus incurred was very considerable in many cases in order to obtain a reasonable despatch, it will be understood that the manner of calculating the strike addition made no small difference.

As the stevedores explained the necessity of introducing the maximum strike addition of 25 per cent. by a refernce to their increasing expenses other than wages, such as providing lodgings and food for the men, it was considered neither fair nor permissible according to the general conditions of the tariffs that the stevedores should debit the addition for labour insurance on the total amount of the stevedoring account, including the strike addition. The cost of insuring the labourers did not rise in proportion to the expenses incurred by the stevedores, so long as such expenses were not confined to increase in wages alone.

A large number of the overcharges in regard to strike addition, as well as to labour insurance, were, however, refunded by the stevedores when their attention was called to the views of shipowners.

The Finnish stevedore labourers do not usually reside all the year round in the ports, but come down from the country during the season only. The housing accommodation available for the labourers leaves much to be desired in many ports, and suggestions were made for an improvement in these conditions. While the co-operation of shippers would be welcomed by shipowners, it was not considered necessary for them, with this object in mind, to acquire, as they have done in some cases, the control of certain firms of stevedores. The only sound principle is that stevedores should work independently of merchants as well as of shipowners. Pressure was brought to bear in responsible quarters in order to prevail on shippers to desist from measures of this nature, and negotiations will be continued on the same lines.

The cost of stevedoring was also increased at Antwerp as a result of a strike, but on the whole it was possible to maintain prices on a fairly reasonable level, including in some cases a smaller return commission to merchants or brokers.

The cost of discharging wood at Ghent is about 50—100 per cent. higher than at Antwerp. The difference is to be sought, not in the conditions of the port, but in the profit made by brokers or merchants. A reduction was obtained in the cost of discharging D.B.B. cargoes as from January 1st, 1929, but even the reduced prices include considerable return commissions. The facts of the case were brought to the knowledge of members through the Information Bureau Circular. It was hoped that in this manner the firms concerned would be made to realise that their procedure would not in the long run be compatible with friendly relations with shipowners.

Stevedoring conditions in British ports came in for a considerable share of attention. There are signs which seem to indicate that it will be possible in a not too remote future to obtain a much-needed revision of the prices charged in certain ports. As a case in point should be mentioned the cost of discharging ore at Hull, where a reduction was enforced by the Hull Incorporated Chamber of Commerce and Shipping through negotiations with the stevedores on the strength of urgent representations made by the Information Bureau. The basis of these representations was the figure supplied by a shipowner who had instructed his captain to keep a careful count of the number of men employed on shore and on board. The total cost of discharging 650 tons of ore amounted to about £70, out of which £20 represented the estimated cost of labour, and the remaining £50 the profit of the stevedore and his expenses to shovels and baskets, as the vessel was discharged by means of her own winches. In another case the total cost of discharge was about £355, out of which one-third, or about £119 only, represented the cost of labour.

The arrangement previously concluded at West Hartlepool was maintained after having been found satisfactory by the few shipowners who were in a position to try it because they had the right to appoint their own broker and stevedore. As will be remembered, the arrangement was to the effect that a certain firm by being entrusted with the discharge and the clearance of the vessel by shipowners would be able to obtain a reduction of 9d. to 1s. 6d. in the tariff prices according to the nature of the cargo and the method of discharge. This arrangement did not interfere with that part of the work for which merchants are responsible, or with a proper apportionment of the cost of discharge under the Baltwood Charter.

It is a riddle to most owners why the cost of discharging wood cargoes should vary in British ports to the extent which is actually the case. The comparative basis of the work for which the vessel is responsible is the same—namely, for the discharge of the cargo until alongside under certain charter-parties, and under others to ship's rail, if discharged by hand, or within reach of the ship's or shore crane tackle if thereby discharged. It would not seem possible that local conditions could make any material difference between the work so performed, but nevertheless the cost of discharge varies, not within a reasonable margin, but within a margin of about 300 per cent.

To discharge standard of D.B.B. at Sharpness costs thus 3s. plus winchmen, at Hull 4s. 6d., Manchester 4s. 10d., London 5s. 5d., West Hartlepool 5s. 3d. by winch and 7s. by crane, and at Garston 11s. per standard by crane. As far as the last-mentioned port is concerned, considerable correspondence was exchanged with various parties in order to prevail either on receivers to agree to an apportionment of the rate or on the dock company to revise their charges. The endeavours were unsuccessful. An owner took recourse to legal proceedings, but judgment was given in the first instance in favour of the dock company to the effect that their charges were reasonable, and in favour of merchants to the effect that they were not liable for any part of the work for which the dock company debited the vessel with 11s. per standard. Regardless of what the final judgment may be, it is permissible to

establish that, if the dock company's charges are reasonable, there are two alternatives only—namely, either that the price of 11s. covers other work than discharge proper, such as tallying, sorting, or separating, which is not usually included in or necessary in the vessel's interest for the discharge of full cargoes of wood, or that the practical monopoly enjoyed by the dock company as far as loading and discharge is concerned represents an instance of exceptionally unsatisfactory management.

A similar variation is found in the cost of other work in British ports. Tally, not only of wood, but also of fruit cargoes, is much higher in some ports than in others without the vessel obtaining appreciable advantage from the higher charge. At Bristol the tally of wood cargoes was thus 1s. 6d. per standard, while in London the same work could be performed at 7d. to 9d. per standard. A reduction was obtained at the former port to 1s. for full cargoes, the rate of 1s. 6d. to be charged only for part cargoes.

The explanation of the difference is no doubt to a large extent that the higher cost arises in ports where legal or defacto monopolies exist, either as at Garston exercised by the dock company, or the same effect is obtained in other ports through strong rings of stevedores and tally clerks.

It was reported that the trustees of the Clyde Navigation at Glasgow intended to seek an extension of their powers to include also the undertaking of stevedoring in certain docks and practically all master porterage, or at any rate the control of the charges to be levied by master porters, as well as all services in the timber yards of the trustees. Although the Conference as a foreign institution was not considered to have any locus standi in opposing through the proper channels the seeking of such powers, representations were made to the Departments concerned on the ground that the proposed action on the part of the trustees would be detrimental to the interest of international shipping, and might be considered also to affect the interest of British shipping abroad adversely by creating a precedent the effect of which could not be estimated, seeing that similar attempts had manifested themselves in certain other countries.

A statement of the views of the Conference was compiled for the use of the Chamber of Shipping of the United Kingdom in their official petition against the power sought by the trustees.

The stevedoring conditions in Norway have also given rise to complaints. Although it was found possible through the action of the Norwegian Shipowners' Association to abolish the confusing distinction between the cost of discharging coke and cinders, the latter of which was 20 öre higher per ton than the former, there are still other ports where the same distinction is made and where the basis on which current prices are established leaves much to be desired.

At Sarpsborg, for instance, the cost of discharging coal may be 1.35 kr., 1.45 kr., 1.55 kr., or 1.73 kr. per ton, according to the nature of the cargo and the firm of receivers for which the coals are destined, which makes a proper calculation beforehand impossible.

Investigations were made in several cases into the cost of stevedoring in French ports, where the stabilisation of the currency seems to have brought prices to rest on a basis which allows the stevedores an unreasonable margin of profit. At Bordeaux it was established that out of a price of 8.00 fr. per ton about 3.50 fr. represented the net cost of labour, while about 60 per cent. was reserved for cost of administration and profit. The same proportion was maintained when the price was increased to 9.90 fr. per ton, so that simultaneously with an increase in wages granted to the men the stevedores raised their own profit from 4.50 fr. to 5.90 fr. per ton, although an increase in wages does not necessitate an increase in the other outlays of the stevedores.

So far the stevedores at Bordeaux and at other French ports where similar conditions were brought to light have refused to listen to reasonable arguments, but negotiations will be continued on the same lines.

Complaints were received concerning the stevedoring tariff at Hamburg, which was not established on a net basis, but in such a manner that reductions could be obtained if the shipowner had free hands to appoint his own stevedore. Further investigations proved that rebates were granted on special contracts which were formally open to all shipowners but which in actual fact could be enjoyed only by local shipowners. Representations were made to the Hamburg Shipowners' Association, with the suggestion that they should consider the possibility of establishing tariffs on the same basis as at other ports where all owners are placed on an equal footing.

Other complaints in German ports centred mainly round checkweighing kainite and similar cargoes, owing to the fact that charterers who were also the shippers insisted on an ambiguous wording of the respective clause of their charter-party. Owners were entitled to interpret the clause to the effect that shippers should pay for the weighing of the cargoes, while the control or the checkweighing should be performed by the captain. This was not the intention of the shippers, as they debited the vessel with the cost of checkweighnig performed by their stevedore or tallymen, while it was this latter checkweighing that the captain should have the option to control—or, in other words, the captain's control represented a third operation. The sound principle of control seems to be that it should be effected by an independent party, and not, as in these cases, by shippers and their men who also perform the weighing itself. Another sound principle is that there should be no overlapping of services, which tends to increase the cost unnecessarily, and such overlapping must be considered to take place when it is proposed to perform the same operation twice.

In most of the ports concerned the weighing is carried out by mechanical appliances, and there is some reason for presuming that the high cost of checkweighing covers more than the actual cost of labour plus a reasonable margin of profit.

The shippers could not accept these views, but they agreed to set out in their charter party the exact cost to be reckoned with to enable owners to take such cost into account when fixing their vessels.

A variation in the cost of discharging herrings in cases in the Weser ports indicated that the vessel was debited with work for which she should not be liable under a charter party providing for the discharge of the cargo alongside. The extra charges represented transport of the goods into the auction rooms, on to waggons, or other operations. Fixtures were made on such a basis that owners had no means of ascertaining whether it was intended to order the vessel to one of the cheaper or to the more expensive ports. Shipowners therefore concluded that there was an equal chance, and calculated their freight rates accordingly, only to find that the vessel would be ordered to the more expensive ports, while, if the cargo was intended for the cheaper ports, this was usually stipulated during the negotiations for the fixture. Negotiations were taken up with the parties concerned, but they did not prove amenable to reasonable arguments, so that owners were recommended to take legal proceedings in order to obtain a refund of the amounts which had undoubtedly been overcharged.

The system of measuring props cargoes in piles by official measurers which was introduced in Swedish ports at the beginning of the 1928 season was accepted with some hesitation on the part of shipowners, and experience during the season did not remove these doubts. It had been hoped that the official certificates should serve not only to obviate disputes concerning the actual intake, but also to ensure vessels a smaller variation in the intake, which variation was at the back of most of the disputes.

There was no appreciable improvement in the variation of intake. The conclusion to be drawn from this fact is either that the method itself was unsatisfactory or that the variation in the intake had not been due to faulty measuring.

The difficulty has always been for owners to prove that their vessels had more on board than the quantity stated in the bill of lading. This difficulty arises in particular in British ports, partly because the cost of properly remeasuring the cargo is very high there, and partly because it is only possible to obtain payment by charterers of such cost if it can be proved that the method of measuring used at the port of loading differed from that stipulated in the charter party, or that no measuring took place at all, or that the quantity stated in the bill of lading was entered therein with fraudulent intention. Except in very special cases shippers will always be able to plead that any difference, if successfully established, is due to a bona-fide error. The consequence is that the owner can only claim freight for the excess quantity, which is practically never sufficient even to cover the cost of remeasuring.

If anything, the official measuring certificates have aggravated this difficulty, as it would require very strong evidence to convince a British court of law that a certificate issued by an independent, sworn measurer should have been issued with fraudulent intention.

In these circumstances certain shipowners interested in the trade declared that they would prefer to dispense with an official certificate as such certificate was tantamount to paying 0.50 kr. per standard in order to cut themselves off effectively from protesting against the intake without obtaining at the same time the desired advantage in regard to a staple intake.

Developments will be watched closely during the coming season, as, in spite of the discouraging experience so far, it is still believed that the solution of the question has to be sought in the measuring at the port of loading, unless owners are to fall back solely on lump-sum basis for the chartering.

(To be continued).

THE MARCONI INTERNATIONAL MARINE COMMUNICATION CO., LTD.

It is announced that the Board of Directors of the Marconi International Marine Communication Company, Ltd., has appointed Marchese Guglielmo Marconi president of the Company.

The Rt. Hon. F. G. Kellaway, P.C., has been appointed chairman in the place of Marchese Marconi. Mr. Kellaway will retain the office of managing director.

Ribble Navigation.

Proposal to Extend River Training Walls.

Ribble Navigation Commissioners propose to extend the river training walls a further one and a half miles, and if this work is carried out it will cost £100,000 and take seven years to execute. This fact was mentioned at the annual inspection on July 4th of the Ribble Navigation by members of the Preston Corporation. Mr. Barron, M.Inst.C.E., engineer and general superintendent of the Ribble Navigation, reported that during the year 1928 the average height of the bed of the eight miles of navigable river nearest Preston was five inches below sea low water level. During the first six months of 1929 it had been four and a half inches below sea low water. The average amount of sand remained much the same as last year, and the drought has confined the silting to the first mile, the remainder of the river having improved. The highest place in the river bed during the year 1928 averaged 3-ft. 2½-in. above sea low water, the first half of the year being 3-ft. 1½-in., and the second half 3-ft. 3¾-in. The first half of this year had ranged from 2-ft. 5-in. to 6-ft. 6-in., and averages 4-ft. 7-in. There is thus a deterioration this year of 16½-in. in the navigable depth at the highest place in the river bed as compared with the last two abnormal years following each other in succession. From eight miles to eleven miles the water area has increased by 3.90 acres, and the areas of all the deeper contours have markedly increased, for instance, the depth of 12-ft. below zero and over has increased by 31 acres to 70.31 acres. From 11 to 14½ miles, that is, to the end of the training walls, the area of water at low water has diminished by one-quarter of an acre, the sandbanks now occupy 85.12 acres out of a total area of 573 acres between the walls in this length.

The narrowest parts of the channel at low water are 600-ft. wide at 14½ miles, 13½ miles and 9⅞ miles, and showed a widening of 130-ft. at 14½ miles, and a narrowing of 80-ft. and 20-ft. at 13½ and 9⅞ miles respectively. The "Lighthouse Hole" kept altering in shape, but remained as useful as ever for anchoring vessels in the channel at low water. Where confined between the training walls, the variations in the size of the sandbanks and in the breadth and depth of the channel had not been great. Where the channel was unconfined beyond the end of the training walls there was constant change. The deepest part of the channel beyond the walls was south of the position it occupied a year ago, and, indeed, south of the line of the south wall, and there was no saying where it might move to next. The recommendation of the Ribble Navigation Commissioners to extend the walls for a further 1½ miles would have to be carried out to secure the direction of the channel and to push the bar out into deeper water.

The extension would take seven years and cost £100,000. Parliamentary powers would be needed to do the work and borrow the money. There was no money left for training walls, and at March 31st there was about £6,400 for the general purposes of the navigation. Since then the cattle lairage had had to be enlarged, and various expenditures incurred to accommodate traffic, so that any further equipment is held up for want of borrowing powers. The undertaking was at a standstill for want of Parliamentary powers to construct works and borrow money for that purpose and for equipment.

Reporting upon the year's traffic, Mr. J. G. Merryweather, general traffic manager, said that last year the imports were 588,536 tons and the exports 171,909 tons, a total of 760,445 tons. The revenue was £212,162, and last year it was £229,970. The average net registered tonnage of vessels entering the port in 1914 was 199 tons, the year before it was 348, and last year it had risen to 365. Those figures showed there was a larger type of vessel using the port. The year just ended did not prove as satisfactory as was anticipated and, in fact, this was the experience of the trade of the country generally. Preston port's decrease of revenue £17,808 would bear comparison with the decreases which other ports had had to report. The imports naturally suffered, and principally the import of timber, which showed a decrease of 36,851 tons. Generally speaking, there was little falling off in the other traffics, and this decrease was made up for by the increase in petrol.

Exports showed a slight increase over last year's, though the shipments of coal and coke had not yet reached the normal. The number of animals landed showed an increase of 11,739, and as a result in the growth of the livestock traffic the lairage had had to be extended. When this was complete it would accommodate 800 cattle and 1,750 sheep, which was an addition of 200 cattle and 550 sheep. Already, for the first three months of the year, they had handled 25,062 animals, an increase of 6,260 when compared with the corresponding period of last year. The petrol trade had greatly increased, and there was now storage for 25,000 tons, equal to 7,560,000 gallons, an increase on the year of 8,200 tons, equal to 2,460,000 gallons.

Turning to the financial position of the undertaking, Mr. Merryweather said there had been a saving on expenditure of £12,612, and the surplus available for the payment of interest and sinking fund was only £3,159 below that transferred in the years 1927 and 1928. The interest and sinking fund charges amounted to £85,706. The net revenue account found £49,723, leaving a deficiency of £36,284 to be provided out of the rates. Capital expenditure had been curtailed, and the amount spent last year was only £10,678, making a total sum invested in the undertaking £1,852,539. Provision had been made for the redemption of £640,522, which left the outstanding debt at the end of March £1,212,017, as against £1,228,266 last year. The number of men permanently employed had been 334. Mr. Barron had had to employ the casual labour of 53 men, and their own casual labour under the registration scheme had concerned 798 men, giving a total of 1,185. The wages paid last year amounted to £130,678.

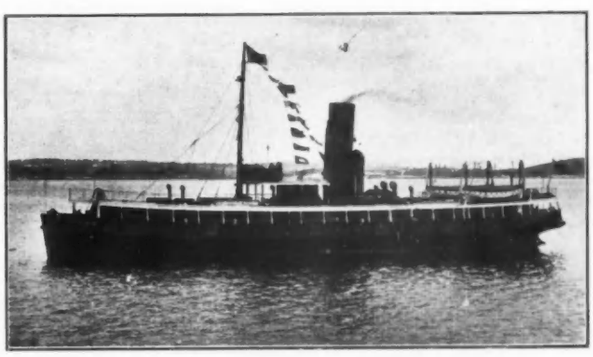
New Twin-Screw Passenger Tender for Plymouth Docks.

"Sir John Hawkins" to replace "Smeaton."

"Land at Plymouth and save a day," has now become a household phrase in the ocean travelling world, and as a result the passenger liner business at Plymouth Docks is increasing year by year.

The Great Western Railway Company, with its characteristic go-ahead policy, have recognised that in order efficiently to cope with the increase of passenger and mail traffic into Plymouth, the best possible tender service must be provided between the liners and the Plymouth Docks.

In pursuance of this policy the Company has just had built a new tender, the "Sir John Hawkins," which was placed in commission at Plymouth Docks on 8th July. This tender will replace the "Smeaton," which will be withdrawn from the service.



The New Tender "Sir John Hawkins."

The "Sir John Hawkins" is thoroughly up-to-date, and every care has been taken to ensure the utmost comfort of the passengers. A luxuriously upholstered lounge and smoke room have been provided, in addition to which the vessel is steam-heated throughout, a new feature which will be much appreciated by passengers landing and embarking during the winter months.

A dining saloon has also been provided, together with ample space on the promenade deck for the storage of mails and baggage. The tender is capable of carrying over 600 passengers between the liners and the docks.

The vessel is also suitable for the excursion traffic between Plymouth and the many resorts which afford such varied and delightful sea trips from Plymouth during the summer season.

The new vessel was built by Messrs. Earle's Shipbuilding Company, Limited, of Hull, and general particulars are given below:—

Length overall, 180-ft.; length between perpendiculars, 170-ft.; breadth, 43-ft.; depth from keel to main deck, 15-ft. 9-in.; draft with bunkers full, water tanks full and steam up and 200 tons of coal aboard, 12-ft. 6-in. aft, 10-ft. 6-in. forward; speed, 12 knots; indicated h.p., 1,700.

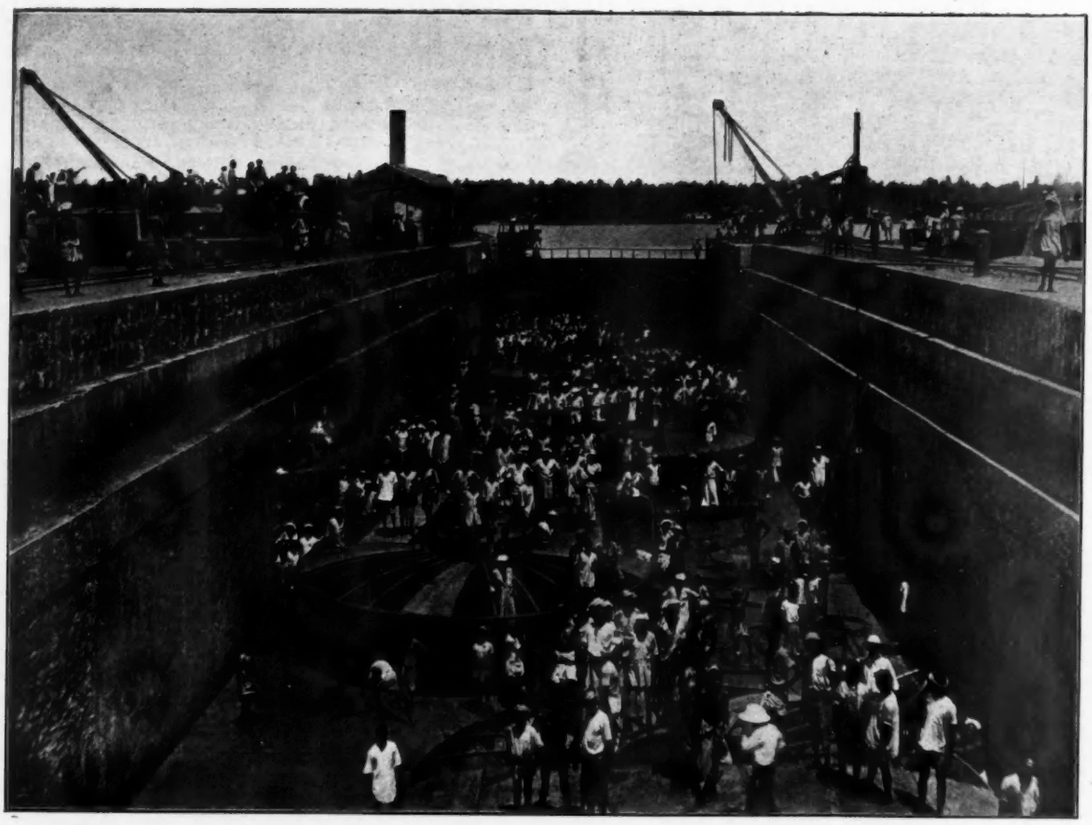
The provision of this new tender will enhance the already excellent facilities for the handling of the ocean passenger and mail traffic at Plymouth.

PORT OF CANNES, FRANCE.

With reference to the working of French seaports, His Majesty's Commercial Counsellor at Paris has informed the department that by a presidential decree, which was published in the Journal Official of the 25th June, the Port of Cannes is to be managed in future by the Nice Chamber of Commerce in place of the town of Cannes.

The Development of Cochin Harbour.

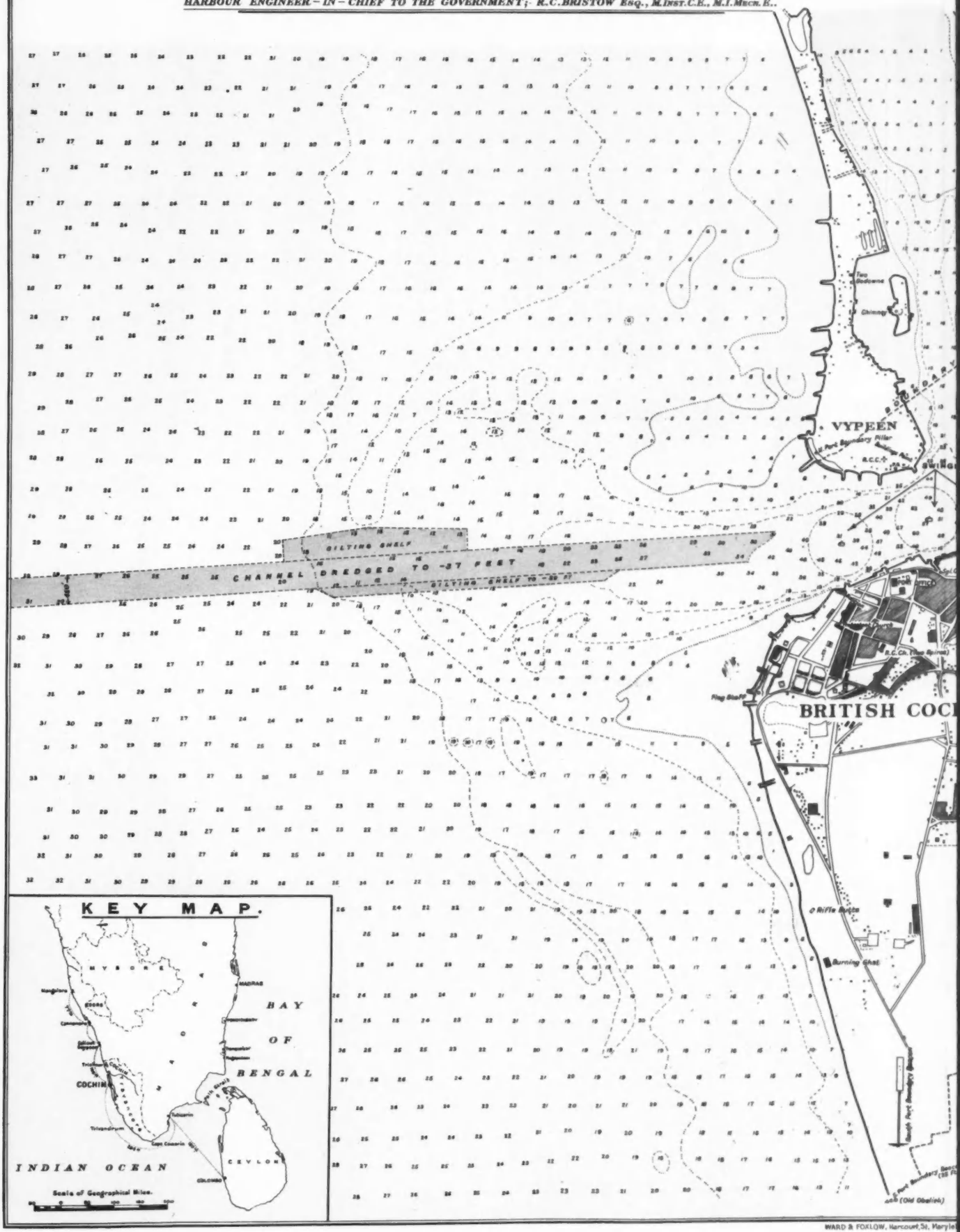
The above photograph is a general view of Cochin Harbour and its entrance, taken from the air. The huge expanse of backwater, the largest in the world, is seen in the background. A part of the reclaimed area is seen just beyond the native craft. The entrance to the harbour is from the right-hand corner in the front. It has been made possible by the cutting of the bar at the entrance for the biggest of ocean-going steamers to enter the harbour and berth safely between the land and the reclaimed area. The Town of Cochin is seen on the portion of the land projecting from the right side.



The newly-constructed Dry Dock nearing completion. These Docks are capable of accommodating all the Native Craft of South India.

COCHIN HARBOUR IMPROVEMENTS.

HARBOUR ENGINEER-IN-CHIEF TO THE GOVERNMENT; R.C. BRISTOW Esq., M.INST.C.E., M.I.MECH.E..



WARD & FOXLOW, Harcourt St, Marylebone

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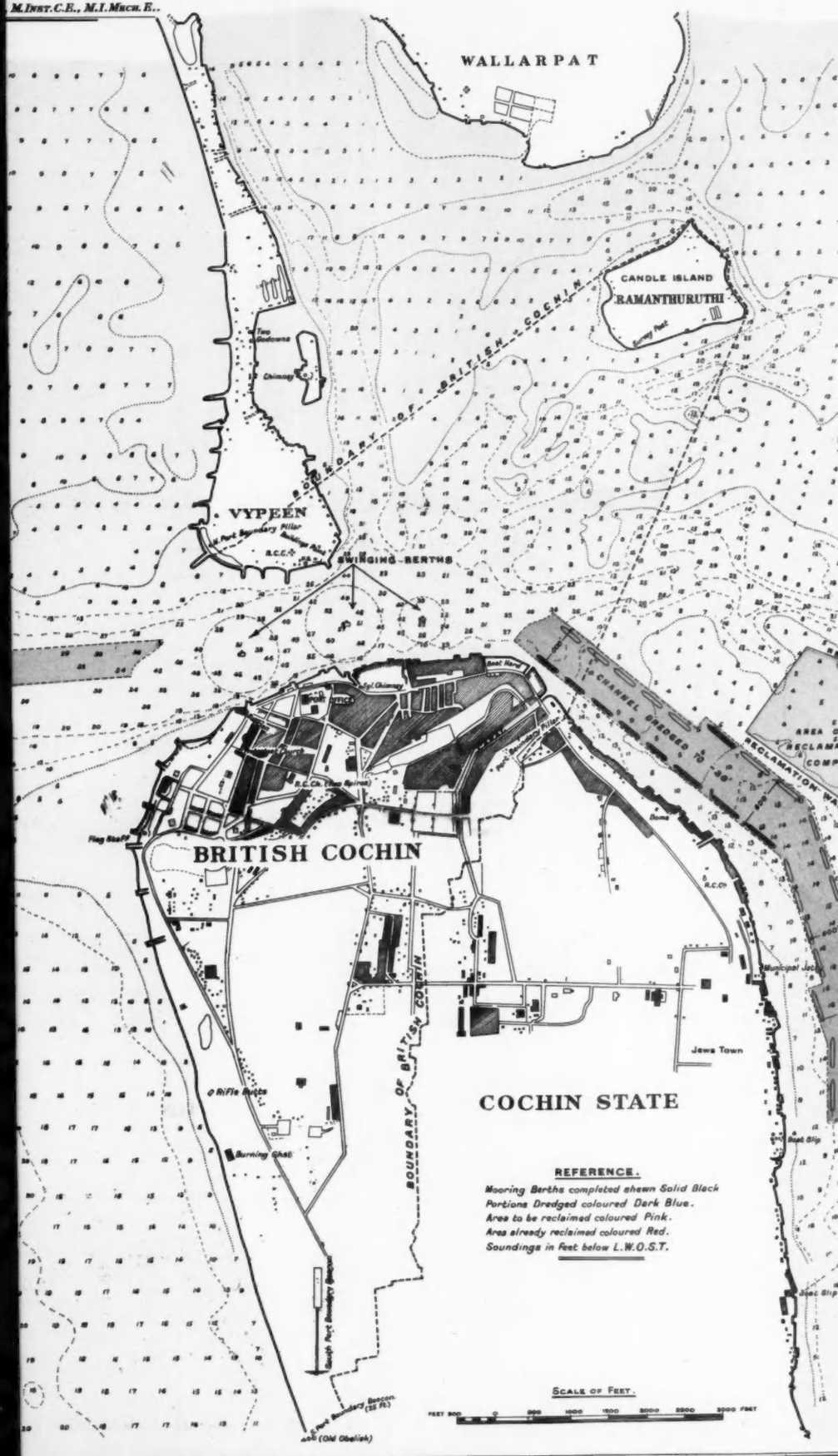
OVEMENTS.

M. INST. C.E., M.I. MECH. E..



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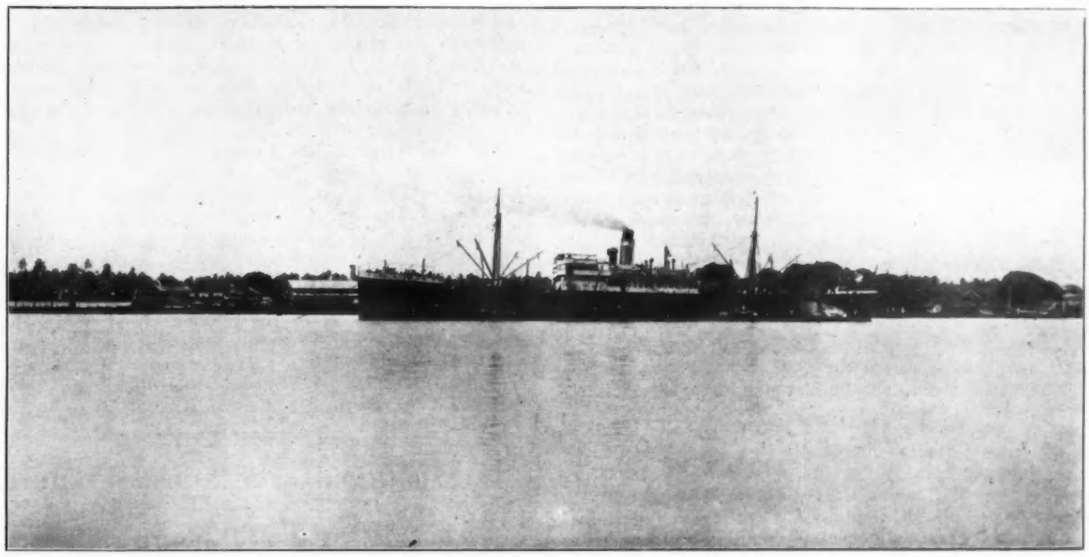
Oil Depôt Chimney
Cochin State Railway
TIMBER DOCK
ERNAKULAM Rv. STATION
Central Jail
BOLGHOTTY
Residency
Pier
Infant Jesus Church
St. Francis Church
R.C. Episcopal House
Mother of Rosary Church
School
ERNAKULAM
Road House
Dock For Boats
Hospital
High School
Government Buildings
Survey Post
RECLAMATION WALL
AREA OF RECLAMATION COMPLETED
112½ ACRES
RECLAMATION WALL
Telegraph Line
VENDURUTHI
TIMBER DOCK
Boat Slip
Boat Slip
DRY DOCK

The Development of Cochin Harbour.

By R. DORAI RAJ.



The first ship inside Cochin Harbour. The Port Premises are being constructed and the Declaration of the Port will be made very shortly.

THE labours of three-quarters of a century have at last been crowned with success, for at Cochin, on the south-west coast of India, about 600 miles south of Bombay and over 100 miles north of Cape Comorin, has sprung up with remarkable rapidity a huge harbour of national importance. Although it is fairly well known that much progress has been made with Cochin Harbour, it is not so well known that the final deepening and widening of the approach channel has not been completed, though the worst part of the cutting and only a few weeks' dredging remains to bring the scheme to a successful conclusion. In this article the writer, who is the first to deal with this subject in a comprehensive manner, will describe some of the physical and historical facts about Cochin and will give a brief account of the extent of the work undertaken and completed.

Cochin Harbour has an entrance 440 yards wide, which gives access to about 125 square miles of navigable backwater, part of which lies to the north of the entrance, but the greater area stretching to the south. British Cochin is one square mile in extent and comprises the portions of land on each side of the harbour entrance.

Cochin is the earliest European settlement in India. On December 24th, 1500 A.D., the Portuguese fleet, under the command of Pedro Alvarez Cabral, anchored in what must have seemed to the sailors the finest natural harbour their eyes had ever seen. In 1577 the first book printed in India was issued at Cochin by the Society of Jesus. The Dutch took Cochin from the Portuguese in January, 1663, and resigned it to the British in 1795. The Governor (Vanspall) made a show of resistance, but a siege train was brought up and a single shell "planted with excellent skill in the centre of Government House," induced a more chastened frame of mind, and he surrendered on terms on October 20th, 1795. The white and black Jews of Cochin are famous throughout India and are a standing puzzle to the historian. Their own legends affirm they reached India about 70 A.D. after the destruction of the Temple. ("Malabar Gazette.")

The Port of Cochin is administered by the Madras Government with the assistance of a Port Conservancy Board consisting of official members of the Madras, Cochin and Travancore Governments and other gentlemen drawn from the mercantile community. The principal exports from Cochin are coir yarn, rope, fibre and matting, copra, hides, nux-vomica, salted fish, coculus indicus, lemongrass oil, turmeric, pepper, ginger, coffee, tea, rubber and timber. The principal imports are rice and paddy, piecegoods, hardware, European liquors and stores, petroleum, sugar, metals, cotton twist and wheat. Last year about 550,000 tons of goods were handled in lighters.

The possibility of making a deep-water harbour at Cochin has been discussed for at least 70 years, and many opinions have been taken from experts. The scheme was persistently advocated by the late Mr. J. H. Aspinwall, the founder of the present flourishing firm on the West Coast bearing his name, who was at that time president of the Chamber of Commerce. Notwithstanding his exertions and the calling in of various experts, nothing was done. The question was re-opened by the Chamber of Commerce in 1900, when Lord Curzon, as Viceroy and Governor-General, visited the West Coast, and again when Lord Kitchener went to Cochin in 1911. The scheme was revived and strongly advocated by Lord Willingdon, the present Governor-General of Canada, when he came as Governor of Madras in 1919. Indeed, it is safe to say that, but for the powerful advocacy of Lord Willingdon, the work would not have been started.

For not only were there many opposing interests to reconcile before anything approaching an agreement could be reached, but there were what appeared to some insuperable difficulties to be overcome. Expert opinion in the past had not been at all optimistic as to the engineering possibility of the scheme, and in 1913 the late Mr. J. R. Bell, of Chittagong, went so far as to say that it was utterly illusory to think of dredging the Cochin Bar in the manner by which it has been carried out. The principal difficulty, of course, lay in the fact that only a few months in the year were suitable for dredging operations, and that unless a substantial channel could be got through in one season, there was every probability that the rough seas of the monsoon would close it up again. Another difficulty lay in the protection of the low-lying parts of sandy beach which form natural breakwaters to the harbour and upon which the sea has been encroaching for many years.

Between 1910 and 1919, however, there was considerable development in the construction of suction dredgers, and in the year 1919 the eminent engineering firm of Messrs. Sir John Wolfe-Barry and Partners gave a guarded but favourable report on the subject. Accordingly, the Government of Madras appointed a whole-time engineer in the person of Mr. R. C. Bristow, M.Inst.C.E., M.I.Mech.E., who was at that time on the permanent staff of the Admiralty and had had great experience of harbour matters in various parts of the world.

In a year or two after his appointment Mr. Bristow had succeeded in stopping the erosion by a series of stone groynes in echelon, had built up a departmental division, including mechanical workshops and staff, had constructed a dry dock capable of taking all the dredging craft in South India, and had carried out certain experimental dredging works which enabled him to say definitely that the major scheme was practicable. His opinion receiving the support of an Advisory Committee appointed by the Government of India in 1924, the scheme was eventually approved in the early part of 1925. The works approved were:—

(a) The dredging of a channel approaching the port and through the outer bar. This is now being made 17,000-ft. long by 450-ft. wide by 35 to 37-ft. deep, and with silting shelves or ledges through the middle portion. The purpose of these shelves is to receive sand beaten across the channel during the monsoon and to assist in preventing it reaching the channel proper;

(b) The dredging of 129 acres of mooring space inside the harbour to a depth of 30-ft. at low water. This, with the deep water already available, gives the port some 250 acres of deep sheltered water, most of which is as calm as a lake even in the roughest monsoon weather;

(c) The making of a reclamation of about 150 acres in the middle of the backwater.

The dredger arrived in May, 1926. It was built similar in pattern to the " Sir George Lloyd " of Bombay. It has achieved a wonderful success, during which it has broken every known record for dredging in the world, some of which will be described later.

During the first season's dredging outside in the open sea in 1926-27, there was considerable trouble with the ball joints which connect up the long floating pipe-line, and for a time it seemed that a serious hitch had arisen in the progress of the works. The difficulty, however, was promptly tackled by the Madras Government and the harbour engineer-in-chief, who was deputed to go to England, set up an advisory committee and obtain new ball joints of an improved pattern as quickly as possible. So rapidly were these instructions carried out that the joints had been re-designed and a large number made and fixed to the pipe-line before the next season's work outside the harbour was due to begin.

From that time the progress of the scheme was marked by one success after another. In 3½ months dredging from December to March, 1927-28, the dredged lifted and discharged over 2¼ million cubic yards of material, consisting very largely of densely packed sand closely resembling soft sandstone rock.

During the following season the dredging inside the harbour resulted in the completion of the mooring area of 129 acres. The analysis of this season's dredging was as follows:—

Number of possible working days, 119; number of actual working days, 115; number of pumping hours, 2,043; average number of pumping hours per day, 20; total material pumped, 1,969,180 cubic yards; number of cubic yards per hour, 963; reclamation completed, 84 acres.

The extraordinary continuity of this dredging and an average of 20 hours' pumping per day out of a possible 24 hours was a remarkable record. Much of the material dredged was dense sand with a large proportion of solid oyster beds.

During the last and final season outside, the dredger started off by advancing nearly 10,000-ft. length over the full width of the channel in the month of December and dredging in that time over 1⅓ million cubic yards. In one week no less than 450,000 cubic yards were dredged, and the dredging rate for the whole month was less than one anna per cubic yard, which included all dredging and repairs as well as for the working and maintenance of the auxiliary craft.

The dredging of the approach channel was completed on 13th March of this year. The analysis of the 3½ months' work was as follows:—

Number of possible working days, 81½; number of actual working days, 80; number of pumping hours, 1,672 hours, 54 minutes; average number of pumping hours per day, 20 hours, 54 minutes; total material pumped, 2,801,910 cubic yards; number of cubic yards per hour, 1,675; the average number of pumping hours per 24 hours shift for the whole of the season's work was 10½ hours.

A contract has just been let to the well-known firm of Messrs. Braithwaite and Co., Ltd., to put down the screw moorings at Cochin, the necessary plant not being available in the department. This is the only contract of any importance which has been let since the commencement of the work.

Mr. Bristow, the harbour engineer-in-chief has recently sent in two important reports, one dealing with the amount of silting appearing in the first cut through the bar, and the second with the total cost of the whole works. From the first report it appears that the average depth of the channel before the work started was 32-ft. 6-in. at low water. After the monsoon the average depth was about 28-ft. at low water, and the greater part of the silting consisted of semi-liquid mud. The result of the first season's work has led to the conclusion that, when the channel is widened and deepened, the depth will not be reduced to less than 30-ft. and that the silting can be cleared away by the " Lord Willingdon " dredger in two months each year.

The report on the original estimates was a little less than Rs.45 lakhs, and for the same amount of work the revised estimate is a little less than Rs. 42 lakhs. Owing, however, to various reasons, especially to the doubling of the quantity of dredging inside the harbour and the corresponding increase in the mooring area, the final estimate comes to something less than Rs.56 lakhs. It is pointed out that the same amount of dredging, if done by contract, would have cost at least Rs.100 lakhs, and if the latest prices for similar work in the East are taken as a guide, the cost would have been nearly Rs.150 lakhs.

It is interesting to speculate on the economic change in South India which will occur as a result of this work. The advantageous geographical position of Cochin, with reference to Suez Canal, marks it out as the natural harbour of the Madras Presidency for trade and commerce with European countries. By steamer, Cochin is four or five days nearer Europe than Madras. The first tendency will be that traffic in Madras Presidency will be drawn westward. It will facilitate, by the construction of certain lines of railways for which surveys have been made, and will be undertaken in the near future, the development of much of the land which is unproductive. The hinterland which the harbour will serve is very fertile and has hitherto no proper outlet. Cochin Harbour will carry trade from the western parts of the Madras Presidency and the Kerala Native States. An impetus will be given to the planting districts on the West Coast of India, which will be able to compete more successfully in world markets because of lower freight charges. Cheaper freights mean that a certain amount of trade along the West Coast will be drawn from minor ports towards Cochin. It might relieve Colombo as a port of call, and it would be most useful as a coaling, watering and repairing base. It might receive mails direct from Europe for the south of India. It will be the most sheltered harbour in the east and the total area which may be made available for moorings is sufficient to hold all the navies and the airships of the world.

The completion of the Cochin Harbour is due to the right type of plant having been obtained for the work and the splendid endeavours of the local staff, which have been beyond all praise. The crews of the dredger, especially, have had to work twelve hours continuously on day shift and night shift alternately for over two years, and a heavy responsibility has fallen on the executive engineer in charge, Mr. A. G. Milne, late of the Bombay Port Trust. By common consent, however, the heat and burden of the day has been borne in the first degree by the harbour engineer-in-chief himself, who for nine years has given himself whole-heartedly, first to overcoming administrative and commercial difficulties, and then to the successful prosecution of the works.

International Lighthouse Conference.

Delegates' Visit to Marconi Works.

A number of delegates to the International Lighthouse Conference just concluded in London visited the Marconi works at Chelmsford on Wednesday, July 17th.

Travelling by road from Marconi House, the party broke the journey at North Weald, Essex to inspect the Marconi wireless transmitting station there, which is employed in communication with European countries.

At Chelmsford the delegates were entertained to luncheon, the Rt. Hon. F. G. Kellaway, P.C., managing director of the Marconi Company, presiding.

Mr. Kellaway, in welcoming the delegates, said that as far as the provisions for securing the safety of life at sea were concerned practically no progress was made during the whole history of the human race until the beginning of the present century. Until then the same method of protection on the coast was used for securing the safety of ships as was used 2,000 years earlier by the Greeks and Romans. That was simply the placing of lights in particular places. The method of lighting and the power of the lights had been improved, but until the introduction of wireless there had been no progress in the type of protection employed. With the introduction of wireless, however, a great step had been taken, and in the last quarter-century great advances had been made in protective measures on the coast for ships by all the countries represented in the Conference.

There was yet a great deal to be done, continued Mr. Kellaway, in solving the problem presented by fog at sea. Great though the contribution of wireless, the wireless direction finder and the wireless beacon had been towards the solution of that problem, there was still much to be done before the ideal was attained, and every ship could move freely on the sea without risk of mishap no matter what the weather conditions might be. The technical men of all nations represented at the Conference were concentrating on that problem. That it would be solved he had no doubt, and in solving it they would do a service not only to those concerned with navigation at sea, but also in the wider field of navigation in the air.

In that International Lighthouse Conference, he concluded, they had created a machine which, if properly used, would, he believed, enable them to make a far greater advance in the course of the next few years than had been made in the thousands of years now behind them.

A tour of the works followed, when delegates had the opportunity of inspecting the manufacture and testing of all classes of wireless apparatus. Wireless beacon stations of the type installed on the coast as guides to shipping, and wireless direction finders, transmitters and receivers for ships were of particular interest to the representatives of the world's coastal authorities, who had already seen a wireless beacon station in operation when they visited Dungeness on Monday for that purpose. The Dungeness beacon station is the latest of the series of Marconi wireless beacon stations being established for Trinity House and has only just been completed.

Leaving the workshops, the party drove to the Marconi experimental station at Rainsford End, and were given demonstrations of reception from beacon stations installed by the Marconi Company for Trinity House, wireless direction finding, and the automatic alarm working as on board ship. Wireless telephone sets, with call bells, as installed on lightships, and at lighthouses, were also shown in operation.

Notes from the North.

A LIVERPOOL INVENTION.

Invented by Mr. T. L. Norfolk, of Liverpool, an appliance specially designed for the rapid discharge of small coal, or "duff," from wagons, will be incorporated in one of the three new hoists which have been ordered by the Leith Harbour Commissioners, who have placed an order with Messrs. Vickers Armstrongs, Ltd., for three 30-ton coal hoists for their Imperial and Edinburgh docks. One of these hoists will be equipped with the "Norfolk spade." This appliance will, with the three hoists, be manufactured at Elswick Works.

RECLAIMING MERSEY FORESHORE.

The work at Otterspool which has been sanctioned by the Liverpool City Council, subject to a grant made by the Government, is estimated to cost about £100,000. It includes the reclamation of a portion of the foreshore, and the construction of a river wall with temporary end embankments, as part of a scheme for the provision of a promenade and marine parade facing the Mersey, of about a mile and a half in length.

HOUSING CRANES AT DOUGLAS.

Douglas Corporation Works Committee has had under consideration a letter from the Harbour Commissioners stating that they would be prepared to allow the two cranes used in connection with the widening of the promenade to be placed on the Harbour Commissioners' land for the summer months, subject to the condition that any property placed and remaining there is at the risk of the Corporation as regards damage to the cranes or damage to the Commissioners' property, and on the payment of a small rental. This arrangement has met with the approval of the Works Committee.

HANDLING PLANT FOR BULK OIL.

Some little time ago it was mentioned in these notes that Messrs. Elder Dempster and Co., Ltd., the well-known shipowners who have done so much to develop West African trade, were making preparations for the transport of palm oil in bulk. This, of course, necessitates the introduction of new plant and storage facilities at the ports of discharge. This matter was referred to at the annual meeting of the company, whose ships sail principally from Liverpool, by Lord Kylsant, who said that the Company now had thirteen ships fitted with oil tank accommodation. Each of the eight cargo motorships at present under construction is also being fitted with tanks for the conveyance of palm oil, making 21 vessels shortly available for this service. Hitherto, palm oil has been loaded into the ships' tanks from casks, a laborious method involving detention of vessels on the coast, but the erection of tanks for the storage of palm oil in bulk at both Apapa and Burutu will facilitate loading at these ports. Lord Kylsant mentioned that the new harbour at Takoradi became available for traffic last December, and the motor liner "Accra" was the first passenger vessel to enter the harbour after its practical opening. It was originally contemplated that when Takoradi Harbour was in operation some of the smaller ports on the Gold Coast would be closed for traffic, but, in the case of some of these ports, this has not, as yet, been found practicable. Whilst the company is anxious to take advantage of the improved conditions for embarking and disembarking passengers and handling cargo at Takoradi, it is arranging to continue to serve the smaller ports until the Gold Coast Government decides that the time has come to concentrate on Takoradi. All passengers and general cargo hitherto dealt with at Sekondi are now provided for at Takoradi, but the manganese ore shipments and some coal traffic continue to be dealt with at Sekondi. When this traffic is also transferred to Takoradi it will be possible to arrive at a more adequate estimate of the real value of the new port. Elder Dempster and Co. have under consideration the construction of a new dry dock at Lagos in order to replace the existing dry dock which has been in service at Forcados, and later at Lagos, since 1905.

FUTURE OF CLARENCE DOCK SITE.

For close on three months now, employees of the Liverpool Corporation have been working at Clarence Dock preparing the site for the new Riverside Power Station. The dock has been emptied of water, and six cranes are now engaged conveying huge skips of mud along a temporary railway to the river wall, where their contents are tipped into the Mersey. The bed of the basin, which is of solid rock, looks quite spick and span, and is ready for the next stage—that of actual construction. The whole of the quay sheds, except those required for temporary storage purposes, have been demolished. Building is expected to begin early this month (August), and it is anticipated that the station will be ready to start up towards the end of 1930. In the clearing of the dock there were discovered an Irish halfpenny of 1769, a Chinese coin of 1773, and two gold watches, the cases of which are in excellent condition. The erection of the building and plant will provide employment for between 300 and 500 men for eighteen months, and, with the exception of specialists in various branches, the work will be performed by Liverpool men. When completed the power station will be the most up-to-date of its kind in the British Isles, embodying all the latest innovations and discoveries of electrical science.

NEW DOCK STATION?

To serve the new Gladstone Dock system of the Mersey Dock estate (the nearest stations on the Overhead Railway are the Alexandra Dock and Seaforth stations, both a considerable distance away from the central point of the Gladstone system), it is understood that there is a likelihood of the Overhead Railway Company constructing a new station. It is believed that the new station will be erected about half-way between the existing Alexandra and Seaforth stations, which will place it approximately opposite the treble-storey shed on the south side of the Branch Dock No. 1. The facilities provided by the overhead railway for getting from one part of the dock estate to another are appreciated by all who have business with the shipping of the port, and it is satisfactory that these facilities are to be further extended to cover the latest and greatest addition to the network of docks controlled by the Mersey Docks and Harbour Board. The decision of the Overhead Railway Company is evidence of the work that is continually being done to improve the facilities at the port of Liverpool.

MERSEY TUNNELLING PROGRESS.

The Mersey Tunnel Joint Committee held a meeting on July 12th, at which the engineers reported that 47 per cent. of the excavation for the full-size tunnel under the river, and 43.4 per cent. of the iron lining had now been completed. During the past month the cast-iron arch lining had been completed under the deep rock channel of the river where the cover of rock above the excavation was at the minimum of about 3-ft.

"We feel," they continued, "that this marks a distinct stage in our work, and although the danger of an influx of water into the tunnel working cannot be said to be passed, the risk of such an occurrence is now remote. We take this opportunity of reporting to the Joint Committee that this success has been achieved by the skill, care and whole-hearted co-operation between your contractors (Messrs. Edmund Nuttall, Sons and Co., Ltd.) and the engineering staff under Mr. B. H. M. Hewett." Work is now advancing rapidly on Contract No. 2, which comprises the construction of the 44-ft. diameter iron lined tunnel between the shafts at George's Dock, Liverpool, and the Morpeth Branch Dock, Birkenhead. Of the contract amount of £1,413,601, £580,578, or 41.1 per cent. of the whole, has been expended. The enlarging of the headings to the full-sized tunnel is proceeding at ten working faces, and 47 per cent. of the excavation (representing 122,374 cubic yards out of a total of 260,000 cubic yards) has been finished. Of the cast iron lining, there are now in place 22,595 tons (43.4 per cent.) of the total of 52,600 tons in the contract. The number of men employed on this contract is about 780.

BIG ISLE OF MAN EXPENDITURE.

The Isle of Man Red Pier extension scheme, which is estimated to cost £262,000, has been approved by Tynwald. It is proposed to lengthen the Red Pier by 400-ft. and to deepen the water around the extension, and then to run a viaduct on piles from the head of the lengthened pier along the side of the pier, and across the beach to the Victoria Pier to carry the traffic using the boats sailing from the Red Pier. For many years there has been inadequate berthage at the Victoria Pier, Douglas, for passenger steamers during the season. The scheme provides for three additional deep-water berths and one tidal berth, and it is said that calm and safe berthage would be assured in all weathers, thus obviating the necessity of steamers having to land their passengers at Peel in stormy weather. It is estimated that if work proceeds continuously, the scheme will be completed in seven years, but if treated purely as an island unemployment scheme, for winter work only, would last for fourteen years. The full scheme entails the carrying out of the following work: (1) Dredging an area approximately 800-ft. long by 370-ft. wide, immediately to the eastward of the present Red Pierhead, so that over this area there shall be a depth of 15-ft. at low water of an ordinary spring tide; (2) building in the centre of this deepened area a solid stone faced extension of the Red Pier, such extension to be 400-ft. long and 70-ft. wide, and so placed that its south face shall be a continuation of, and in the same straight line as, the south face of the present Red Pier; (3) constructing an openwork viaduct 50-ft. wide running from the western end of the above-mentioned extension along the back, or north face of, the existing Red Pier for a distance of about 450-ft., and then turning northward across the beach to join the base of the Victoria Pier, at a point opposite the open space between the Victoria Pier Buildings and the Peveril Hotel, the object of the viaduct being to provide easy access for foot passengers and vehicles to the extension. The scheme is not a new one by any means. It had been in the minds of several prominent men as early as 1897, and had been favourably reported upon by Mr. James Walker, an eminent

engineer who did a lot of work on the island over a long period. He pointed out that the Isle of Man would be in a hopeless condition without the harbour works, which were started by Governor Loch.

HAULING A CRIPPLE.

One of the Mersey Docks and Harbour Board steamers, the "Salvor," had a peculiar job to perform recently. The steam barge "Algeria" sank in Bramley-Moore Dock while loading coal, and it was necessary to lift and transfer to a less inconvenient spot. The raising of the barge was effected by wires placed under her, the ends being attached to a "camel" and the Dock Board steamer. At high water the dock gates having been opened, the barge rose from the dock bed with flood tide. While being towed by a tug the procession proceeding to Tranmere Beach created much interest. Only the mast of the barge was visible.

RHYL PIER CONTRACT.

Work has been at last started on the reconstruction of the pier at Rhyl, and derricks have been erected by the contractors with a view to operations being proceeded with at once. The cost of the reconstruction will be about £1,200, and there will be landing jetties arranged so that a service of motor boats can be maintained between Rhyl and other coast towns.

£2,000 IN HALFPENCE.

Manx Harbour Commissioners last year received £1,988 in halfpenny tolls at the Douglas swing bridge; £800 of this was profit. At the Queen's Pier, Ramsey, the tolls received amounted to £185, and, to collect them, a man had to be paid £138 10s. £14,356 was received in passenger duty last year, and the total revenue received by the Commissioners was £48,148.

NEW ROLLERS FOR RUNCORN TRANSPORTER.

After undergoing a complete overhaul, the old quay swing-bridge at Runcorn, to which has been fitted new rollers weighing 30 tons, on which the bridge swings, is now in commission again. This engineering feat was completed late on a Sunday night without any interference with traffic. It is 22 years since the bridge, which crosses the Ship Canal, underwent a similar overhaul, when the 60 rollers were removed and replaced by new ones. To execute the contract four hydraulic jacks were brought into commission, and the bridge, weighing 600 tons, was lifted bodily while the rollers were changed by 50 workmen under the direction of Mr. W. G. Smith, chief engineer of Manchester, and Mr. R. H. Pringle, the manager of the Old Quay workshops, Runcorn.

DOCK BOARD DREDGER SOLD.

The twin-screw dredger "Walter Glynn," which has been used by the Mersey Docks and Harbour Board since 1895, has been sold by auction by Messrs. C. W. Kellock and Co. A number of leading shipbreaking firms were represented at the sale. The bidding, which was quite brisk, opened at £1,000, and the vessel finally realised £2,310, being disposed of to local shipbreakers at that price. The "Walter Glynn" was built by Messrs. W. Simons and Co., Ltd., being 189-ft. in length, 35-ft. in width, and 12-ft. in depth, and her career of useful service in the Port of Liverpool is now thus terminated.

BIG CARGO LIFTS FOR FLOATING CRANE.

There was an interesting spectacle at Canada Dock, Liverpool, recently, in connection with the shipment of giant logs of British oak, several weighing over 13 tons, part of a consignment of 350 tons of British oak which is being sent to America in the American Steamship Lines Agency vessel "Cold Harbour." They were placed on board by the Mersey Docks and Harbour Board floating crane "Hercules." There is a great demand for seasoned oak in America, and many of the huge logs, in some cases overgrown with moss, are hundreds of years old. They have been collected from different parts of the country. A very big export trade in timber is carried on from Liverpool, but seldom have such huge logs of oak been handled at the port. The Dock Board crane had to be commissioned, as the tackle available on board the steamship was not capable of handling such heavy and cumbersome loads.

NEW MERSEY LANDING STAGE.

Egremont Ferry, on the River Mersey, which has been closed during the construction of a new landing stage which cost £28,800 to build and fix in position, is now in service. A new 60-ton bridge has also been erected. The passage along the pier has been divided by means of chains and posts into three portions, two of which are available for the "one way" rush in the morning and evening respectively. As soon as the new stage was fixed, joiners began work on the stage erecting the waiting rooms from the material lying ready to hand. The iron framework had been placed in position ready to be clothed. It is just a century ago since the first landing place and jetty was constructed at this point on the Cheshire side of the Mersey. Then for seven years from 1845 the ferry was worked by the Brothers Colburn until, in 1852, the local Council acquired the undertaking, Egremont being made the headquarters of the Wallasey ferries and the workshops established there. A short pier and stone jetty was constructed, and on this latter were placed steel rails, along which ran an adjustable stage, so arranged that it could be run out or hauled in by machinery according to the state of the tide. This was in existence up to early in the present century. The pier was lengthened and a floating landing stage provided in 1908. The wooden dolphin system adopted proved to be unsatisfactory, and mooring chains and anchors have now been substituted.

NEW GRAIN ELEVATING PLANT.

By next month there should be completed at Liverpool the monster grain elevating plant which is erected at No. 2 Alexandra Dock, Liverpool, for the Liverpool Grain, Storage and Transport Co., Ltd. The new plant will handle 500 tons per hour, which, in ordinary practice, means a total output of slightly under 4,000 tons a day. It consists of two pneumatic intake elevators and conveying bands, to discharge and convey to the warehouses direct from the steamers. The present facilities are all overside, that is, the grain is discharged into floating elevators. The new plant is permanently fixed to the quayside. Thus a ship can be worked both from the quay and overside. The plant will make a considerable saving in working expenses, because the extra cost of barging will be obviated, with a consequent reduction of charges. The rate of discharge from next month onwards will depend on the conditions so far as the shipowners are concerned. If an owner wants his boat out very quickly, all the plant will be concentrated upon it, but 4,000 tons will remain the average daily rate of discharge. Although as many as six cargoes are sometimes being worked at once, there are no delays even with the present facilities. What happens is that the elevators are distributed over a larger number of vessels, and discharging goes on at a reduced rate, not per day but per vessel. It is interesting to recall that, in May, grain discharge at Liverpool touched 4,000 tons for the ordinary working day of eight hours, and in the case of one ship, the "Union," another 1,200 was discharged in four hours' overtime.

MERSEY TRAINING BANK.

A start has just been made on the work of constructing a stone training bank to a height of about 10-ft. above low water on the east side of the Crosby Channel (River Mersey) about 950 yards (approximately 210 degrees) from the Crosby beach mark, proceeding in the form of a flat curve and terminating about 975 yards (approximately 207 degrees) from the north outer mile mark. Temporary buoys, lights and marks have been laid down for the purpose of marking the site during the progress of the work.

£105,000 FERRY IMPROVEMENT SCHEME.

Extensive reconstruction work, estimated to cost £105,000, may be carried out at Seacombe Ferry, which is controlled by the Wallasey Corporation. For a long time the need of improved facilities has been manifest, and the Council decided to call in Sir John Wolfe Barry to furnish a report to be considered, at the same time as those drawn up by the borough engineer and the ferries manager. If the scheme prepared is adopted, an additional covered bridge for passengers will be constructed from the Seacombe landing stage, while the managerial offices will be transferred to the pier which afforded access to the hydraulic lifts before the inauguration of the new floating roadway. By this means the crowding of passengers at rush hours of the morning and evening will be greatly reduced. The clock tower, from which the hydraulic lifts were worked, will possibly be demolished and a more ornate building substituted, although there may be a strong objection to this part of the scheme. The workshop and stores yard are to be cleared away and the site appropriated for use by the motor 'buses, with a large central island for the conveniences of ferry passengers. The scheme to be submitted to the Council for approval provides for the erection of new ferry workshops near the floating roadway.

It is proposed to proceed with the work in seven sections. The first is to be the erection, at an estimated cost of £14,300, of new workshops adjoining the new floating roadway. The second is the demolition of the existing workshops and the clearance of the site of the building and the adjacent storage yard at an estimated cost of £1,000. The third portion, which would involve an expenditure estimated at £22,000, provides for an extension of the covered portion of the landing stage, the provision of additional pontoons and the reconstruction of the old goods bridge for use as an additional passenger bridge. The fourth section of the scheme involves the reconstruction and extension of the ferry vestibule and frontage and the demolition and re-erection of the clock tower at an estimated cost of £22,400. A further £10,500 will be spent in paving and improving the ferry approaches, etc. The sixth and seventh sections provide for the erection on the site of the present workshops and motor parking station of a new building to be used as a garage, etc.

The Port of London Authority.

*A Survey of Twenty Years' Work and Trade.**

By D. J. OWEN.

THE Port of London Authority was established on the 31st of March 1909, and as it thus entered upon its 21st year of existence on the 31st of March last, I thought it would be interesting to the members of the Institute of Transport if I made the subject of this lecture a review of the work the Port Authority has accomplished during the last two decades.

I am not aware of any special virtue or significance in such a period, but it is well that the activities of public institutions should be reviewed at intervals in order that it may be seen whether or not they are fulfilling satisfactorily the purposes for which they were created.

It will be remembered that the Port of London Authority owes its inception to a Royal Commission which was set up in June, 1900, and which in June, 1902, presented a comprehensive report. One paragraph of that report may be quoted, as it summarises in a few eloquent words the state of the Port of London at the time. It reads:—

> "We desire to say that our inquiry into the conditions of the Port of London has convinced us of its splendid natural advantages. Amongst these are the geographical position of the port; the magnitude, wealth and energy of the population behind it; the fine approach from the sea; the river tides strong enough to transport traffic easily to all parts, yet not so violent as to make navigation difficult; land along the shores of a character suitable for dock construction and all commercial purposes. In addition to these advantages, London possesses docks which, although they are not in some cases upon the level of modern requirements, are yet capacious and capable of further development. The deficiencies of London as a port, to which our attention has been called, are not due to any physical circumstances, but to causes which may easily be removed by a better organisation of administrative and financial powers. The great increase in the size and draught of ocean-going ships has made extensive works necessary both in the river and in the docks, but the dispersion of powers among several authorities and companies has prevented any systematic execution of adequate improvements. Hence the port has for a time failed to keep pace with the developments of modern population and commerce, and has shown signs of losing that position relatively to other ports, British and foreign, which it has held for so long. The short-comings of the past cannot be remedied without considerable outlay. We are, however, convinced that if in this great national concern, energy and courage be shown, there is no reason to fear that the welfare of the Port of London will be permanently impaired."

The Act of Parliament which was eventually passed, entitled the "Port of London Act, 1908," and which transferred to the new Body, called the "Port of London Authority," the undertakings and powers of the old dock companies as well as the functions of the Thames Conservancy below Teddington and of the Watermen's Company in so far as they related to the administration and control of the river, threw upon the Authority the primary duty, to quote the words of the Act, "to take into consideration the state of the river and the accommodation and facilities afforded in the Port of London, and, subject to the provisions of this Act, to take such steps as they may consider necessary for the improvement thereof."

This sentence, couched in terse legal phraseology, forms a fitting text for this lecture and must be considered in the light of the paragraph above quoted from the Royal Commission's report. That paragraph drew attention to the difficulty that had existed in the way of executing systematic improvements owing to the dispersion of powers among several authorities and companies. That was the first difficulty; it was a fundamental one; and the Act itself removed it. Instead of the separate and independent concerns of the London and India Docks Company, the Millwall Docks Company, the Surrey Commercial Docks Company, and the Thames Conservancy, there was one public authority to control the whole of the tidal portion of the River Thames and the dock systems. It is to be remembered, however, that the Corporation of the City of London retained the sanitary supervision of the port so far as shipping was concerned and that the Corporation of the Trinity House kept their powers of lighting, buoying and pilotage, while the Metropolitan Police were still to exercise their functions on the river.

* Paper read at an Ordinary Meeting of the Institute of Transport, held in London on April 8th, 1929, and reproduced by their kind permission.

The new Port Authority, after dealing with the administration and management changes rendered necessary by the transfer to them of the staffs of the old undertakings, a task of no small magnitude, lost no time in taking steps for the improvement of the port in accordance with the mandate of Parliament. What the Port Authority has done will be more readily apprehended if it is given in geographical sections rather than chronologically.

The River may well be taken first, as it is the first item mentioned in the Act as being consigned to the consideration and care of the Authority.

THE RIVER THAMES.

It can be no fortuitous circumstance that the river is first alluded to, for it requires but little reflection to discover that the Thames is the key to the situation—the gate or passage way the width and depth of which control the volume of traffic that can enter the port. The Royal Commission had fully realised this salient fact and were more than usually emphatic when referring to the geographical position of the port, its fine approach from the sea and the character of the river tides. They had drawn attention to the fact that the great increase in the size and draught of ocean-going steamers had made extensive works necessary in the river. The position about the year 1909 was that the ruling depth in the channel from The Estuary to Gravesend was 25-ft. at low water of ordinary spring tides. From Gravesend to Coldharbour Point there was a depth of 18-ft.; from Coldharbour to the Royal Albert Dock entrance the depth was 15-ft., while above the latter point to the South West India Docks it was 13-ft. The deepest draughted vessel that had used the port up to that time drew 27-ft.

The necessity for improving the river was so impressed upon Parliament that, in addition to directing the Authority generally to improve the river, they took the rather remarkable course of placing upon the Authority a definite obligation to form a channel between The Nore and Gravesend of not less than 30-ft. deep at low water of ordinary spring tides and not less than 1,000-ft. wide throughout. That obligation has been fully discharged and the position now is that there is a good navigable channel 1,000-ft. wide with a general depth of 30-ft. at mean low water springs, as stipulated, extending from The Nore to the Tilbury Dock entrance, a distance of about 25 miles. For a further distance of ten miles, that is, from Tilbury to Coldharbour Point, the channel is of the same width and depth, while from the latter point to the Royal Albert Dock, a length of six miles, the channel is 27-ft. deep and 600-ft. wide. From the entrance of that dock a depth of 20-ft. over a width of 600-ft. extends through Woolwich Reach to Bugsby's Reach and, with some variations, as far as the entrance to the West India Dock, a distance of just over four miles. Above that place the channel continues sufficiently deep and wide to enable large sea-going steamers to ascend to the Pool of London. It will be seen that in some sections of the channel the depth has been improved by 12-ft., in others by 7 and 5-ft., and it may be noted that the bed of the navigable channel throughout the river as far as the highest dock system is down to the level of the sills of the various dock entrances.

The deepest vessels now using the port are the s.s. "Minnetonka" and the s.s. "Minnewaska," which draw up to 37-ft., that being also about the normal draught of the two largest vessels in the world—the "Majestic" and the "Leviathan."

The dredging operations which have accomplished this great improvement and which have been necessary to maintain the channel in this condition have cost over £2,000,000 and have involved the removal of 47,000,000 tons of material from the bed of the river.

DOCKS AND WAREHOUSES.

Extensive works necessary in the docks as well as the systematic execution of adequate improvements were points stressed by the Royal Commission, and this problem was grappled by the Authority. A comprehensive programme of improvements to be executed as soon as possible was formulated. The initial programme was duly carried through and subsequently, to meet the needs of trade from time to time, other schemes of improvement were embarked upon. A whole volume would be necessary if all of these works were to be described in detail. Here it will only be possible to give a list of them and an idea of their cost. The spending of large sums of money is, of course, in itself not a virtue, but, so far as the works referred to are concerned, the hint of the Royal Commission that the shortcomings of the past could not be remedied without considerable outlay will not be overlooked.

LIST OF CHIEF WORKS ENTERED UPON AND COMPLETED BY THE AUTHORITY.

London and St. Katharine Dock System.—Erection of double-storey shed and widening of the quay of the north side (Western) London Dock. Commenced in 1911 and completed in 1912.

Rebuilding of tobacco dock passages, 1912-14.

Construction of ferro-concrete jetty with double-storey transit sheds in Western Dock, London Dock, 1912-14.

Pumping installation to maintain water level 4-ft. 6-in. above T.H.W., 1912-14.

New berth, Wapping Basin, 1926-27.

India and Millwall Dock System.—Millwall Dry Dock extended to 550-ft., 1912.

Widening of entrance passage between basin and Import Dock, West India Dock, 1912-15.

Construction of three transit sheds on North Quay, East India Dock, 1912-14.

Double-storey transit shed on East Quay, East India Docks, 1912-14.

Pumping plant to maintain water level in docks, 1912-14.

Widening of North Quay of Import Dock, West India Dock, 1912-16.

Construction of three double-storey transit sheds, North Quay of Import Dock, West India Dock, 1912-16.

Widening of North Quay of Export Dock, West India Dock, 1912-14.

Construction of two transit sheds on North Quay of Export Dock, West India Dock, 1912-14.

New Central Stores Building, including workshops, provided at the West India Dock, 1920-21.

No. 1 Shed, East India Import Dock, adapted and equipped for discharge of frozen and chilled meat, 1922-23.

Royal Victoria and Albert and King George V. Docks System.—Pumping station for raising level of water in the Royal Victoria and Albert Docks 2½-ft., constructed at Galleons Entrance, Royal Albert Dock, 1911-12.

Enlargement of Western Dry Dock, Royal Albert Dock, 1912-14.

No. 6 Cold Store at the North Side, Royal Albert Dock, 1914-18.

Cold Sorting Floor on North Side of Royal Albert Dock, 1919-20.

"K" Annexe Warehouse for accommodation of tobacco erected on North Side, Royal Victoria Dock, 1924-25.

Six-storey warehouse on the quay between "D" and "E" jetties, Royal Victoria Dock, for the warehousing and handling of hogsheads of tobacco, 1921-22.

New quay on North Side, Tidal Basin, Royal Victoria Dock, with sheds and equipment for the handling and dispatching of chilled meat, 1924-25.

Construction of new meat berth on north side of canal between Royal Victoria and Royal Albert Docks, 1924-25.

Construction of King George V. Dock, 1912-1921.

Tilbury Dock System.—Extension of main dock, 1912-17.

Erection of three transit sheds, 1912-17.

Berth and passenger accommodation for Tilbury—Dunkirk Service, 1927-28.

Surrey Commercial Docks System.—New shed measuring 75,000 square feet on river front adjoining Greenland Dock entrance, 1919-20.

Quebec Dock, with timber sheds and full equipment, 1923-25.

New berth at the Greenland Dock, 1925-27.

Three new timber sheds, 1927-28.

Sundry other Works.—Tilbury Cargo Jetty, 1915-21.

New Head Office opened in 1922.

Charterhouse Street Cold Store, 1912-13.

Equipment of the Authority's Dry Docks, 1918-19.

The cost of the above works may be taken in round figures at £11,000,000.

LIST OF WORKS NOW BEING UNDERTAKEN BY THE AUTHORITY BUT NOT YET FINISHED.

Tilbury new Dry Dock commenced 1926.

Tilbury Entrance Lock commenced 1926.

Tilbury Passenger Landing Stage commenced 1926.

Modernisation of West India and Millwall Dock System commenced 1926.

New Entrance—South West India Dock, commenced 1928.

Development of Lavender and Acorn Ponds:—New discharging berths, timber storage sheds, impounding station, etc., commenced 1928.

The estimated cost of these works is £4,709,000.

The improvements at Tilbury Dock were found necessary as the march of time was bringing about the same state of affairs there as was experienced at the other docks, namely, that the ships were almost too big for the entrance lock, while they had actually outgrown the dry dock. It was decided in 1926 to build a new entrance 1,000-ft. long, 110-ft. wide and 45½-ft. below Trinity High Water, the old lock being 695-ft. by 79½-ft. by 38-ft. The largest dry dock at Tilbury is now 697½-ft. by 78-ft. and the new one will be 750-ft. by 110-ft. with a capacity for enlargement to a length of 1,000-ft. whenever requisite. The longest and broadest vessels now using the Tilbury Docks are those of the Orient Line, and as their length is 632-ft. and their beam 75.2-ft., the necessity for the new lock and graving dock is apparent.

The Tilbury Landing Stage is being constructed in view of the fact that London has been reproached for not having within the port special facilities, such as exist at Liverpool, for instance, in the way of a floating stage, for the use of ocean-going passengers. At present, embarkation and disembarkation either take place at the dock berth of the vessel or by tender while the steamer is in the river off Tilbury.

The Port Authority, with the cordial co-operation of the London, Midland and Scottish Railway Company obtained Parliamentary powers in 1922 for the construction of a passenger landing stage and certain necessary works in connection with it; the scheme was started in 1926, and it is expected that it will be completed towards the end of the present year. The stage will be 1,140-ft. long, of which 300-ft. will be reserved for the cross-river traffic and the remainder devoted to ocean passengers. Gangways and bridges will be erected between the stage and the river bank, and on the shore will be a commodious Customs baggage examining shed. Considerable improvements are being made by the railway company at their adjoining railway station.

It is significant that the passenger traffic to and from London is becoming more extensive each year. About a quarter of a million sea-going passengers now arrive and depart in a year, this number being about one-third more than it was a few years ago.

The scheme for the modernisation of the West India and Millwall systems of docks became necessary owing to the difficulty of putting the new wine of shipping into the old bottles of docks. Briefly stated, the works involve the building of a new entrance lock of 584-ft. in length and 80-ft. in width in lieu of the old entrance of 480-ft. long and 54-ft. in breadth, and the cutting away of certain portions of the quays so as to form waterway passages between the separate docks of the system. New transit shed facilities will also be provided on the quays of the South West India Dock.

The final item mentioned under the heading of works now being undertaken relates to the development of the Lavender and Acorn Ponds in the Surrey Commercial system. This scheme includes additional berthage space for timber laden ships with sheds for storage and an impounding plant for maintaining a constant level of water throughout the Surrey Docks.

It is difficult to make a comparison between the docks and warehouses as they are now and as they were twenty years ago. Some idea may be gained by contrasting the previous and present dimensions of the quays, but that will not convey an adequate notion of the effect of the development works as many of them did not add to dimensions but improved and rendered useful accommodation that had become antiquated. The total lineal quayage of the docks and basins was 41.7 miles in 1909; in 1929 it is 45.25 miles, but as a matter of fact six miles of reconstructed quays have been brought into effective use. The total area of the Authority's estate is now 3,668 acres compared with 2,700 acres twenty years ago. At the beginning of the period the largest entrance lock was 695-ft. long by 79½-ft. wide by 38-ft. deep; now the largest dock (King George V.) is 800 by 100 by 45-ft., and the lock at Tilbury now in course of construction will be 1,000 by 110 by 45½-ft. The extent of the improvement in equipment will be apprehended by comparing the 970 cranes of 1909 with the 1,500 cranes now in operation.

Apart from the works mentioned, a vast amount of other work of an important character has been carried out by the Authority. Much of the property of the old dock companies was in poor condition when taken over by the Authority in 1909. This is not surprising having regard to the financial position of those companies. The state of the property did not improve during the period of the Great War when there had to be a partial suspension of maintenance work. The Authority eventually found themselves confronted with a long and costly task of bringing the undertaking and its equipment up to the standard of modern requirements. In due course they approved a programme of works embracing renewal and improvements to quays, dock entrances, railway and crane tracks, hydraulic cranes and machinery, capstans, lock gates, bridges, caissons, lifts, floating grain plant, refrigerating plant and electric wiring, as well as flooring and roofs of sheds and warehouses. Each year since, this policy has been pursued, and although all the necessary work has not yet been finished, it may safely be stated that the undertaking is now getting into a condition of first-class physical efficiency. A vital point to remember is that all this tends directly to the more rapid and economical handling of vessels and goods, which is to the substantial advantage of the trade of the port.

FINANCES.

The purchase price paid in 1909 to the Dock Companies for their undertakings was, in round figures, £23,000,000, and this money was raised by the issue of Port of London Stock which was first officially quoted on the Stock Exchange on 25th June, 1909. The capital expenditure of the Authority now amounts

to about £39,000,000, an increase on the original capital of about £16,000,000, most of which money has been provided by the issue of stock at rates of interest varying from 3½ to 6 per cent., the amount of 6 per cent. being however small, that high rate of interest being due to the condition of the money market immediately after the war. It is satisfactory to observe the confidence with which the Port Authority's stock is regarded by the investing public, notwithstanding the fact that it is not a trustee security. In spite of repeated applications the Authority have failed to obtain Parliamentary powers to place the stock in the category of trustee investments.

The statutory provision for the redemption of the Port stock, in other words, the amount in the sinking funds and in the capital redemption accounts, now stands at £2,692,230.

Under the Port of London Act the Authority were directed to accumulate and maintain a reserve fund of £1,000,000 to meet any deficiency on revenue account. By gradual instalments, that fund was formed. In 1911 it had amounted to £75,000, and in the year 1922 to the full figure of a million, at which it stands to-day. This fund forms no burden on the trade to-day as the money is all invested and the interest is placed to the credit of the revenue every year.

The Authority had statutory sanction to establish, if they thought fit, an insurance fund for the purpose of making good any loss or liability arising by loss or destruction of or damage to any buildings or other works or to vessels or craft belonging to them. Some few years ago a start was made in the way of building up such a fund, and only last year it was completed to a sufficient amount, according to the experience of past years, to meet liabilities. The establishment and operation of the fund will effect a reduction in the Authority's expenditure.

PORT CHARGES.

It may not be quite correct to say that the subject of charges is the most controversial point connected with the administration of a port, but it is certainly a matter upon which the users of the port, both shipowners and merchants, frequently have a grievance. This is not unnatural; nobody likes taxation; but there is one point that is often lost sight of, elementary though it may be. It is simply this—that the Port Authority has no revenue but that which the users of the port themselves provide. Whatever accommodation or services those users require, they and they only must pay for. The Authority must, of course, borrow from the public the actual money to be spent on authorised capital works and improvements, and it is the port users, i.e., the shipowners and merchants, who pay the interest on the borrowed money and eventually repay the public the money it has lent. The Port Authority are thus trustees or custodians of public money, and it is their function to levy such dues and charges upon the users of the port as will provide a revenue to cover the working and establishment expenses and the cost of maintenance; the payment of interest on borrowed moneys and of such sums as are necessary for the sinking funds; and the requisite payments into the reserve fund; any balance being applicable for the benefit of the port. The object of the Port Authority is so to assess the dues and charges that the revenue thus raised is just sufficient to carry on, it being borne in mind that money paid by one section of trade should not be used to subsidise another section. A proper control of the port revenues therefore implies that those who require accommodation are obliged to pay for its cost. No amount of argument will make it otherwise. If the Port Authority were extravagant and wasteful, then, of course, there would be ground for complaint, but the very constitution of the Port of London Authority, as well as that of public trusts at other ports, leaves the remedy in the hands of those who pay the charges.

This matter of payment for accommodation has a considerable bearing on a question to which publicity is given at frequent intervals, that of the charges at Continental ports being lower than those at British ports. It is not intended here to enter into this difficult question, but it may be pointed out that in certain foreign ports the State or the municipality shoulders some of the port expenditure, thus enabling the dues on ships or goods, or both, to be less than they would necessarily be otherwise. The relief thus given to the port is, of course, borne by the State taxpayer or the municipal ratepayer.

The Public Trust Ports in this country, apart from Bristol, where the citizens are taxed in order to contribute something to maintain the port, have to raise all the revenue they require to carry on their ports from the payers of dock rates and dues. A slight exception must be noted as certain ports, including London, have recently been receiving some financial assistance from His Majesty's Government in the form of a grant of half interest for fifteen years on certain capital work undertaken for the relief of unemployment.

Whether it is an advantage to a nation that its ports should partly be supported out of the general taxation is obviously a wide and serious question. Under the present de-rating proposals of the Government the Public Trust Ports are likely to gain some measure of assistance out of general taxation for the first time in their existence, but it must be noted that these proposals are not especially for the benefit of ports; they are directed to transport generally. The measure of relief that will be given to industry in this way will flow mostly through the railway companies of the country.

So far as the dues and charges of the Port of London Authority are concerned, it is difficult to make a comparison between 1909 and the present time on account of changed conditions due to the war and other causes. Soon after the Port Authority came into existence the dock charges on shipping using the various docks were revised and made uniform throughout all the docks and a decrease of revenue of £15,000 a year was made in order to encourage a greater volume of traffic. The charges on goods in the docks were also taken in hand and some revised rates were brought into operation from time to time. The cost of labour is, of course, the principal factor affecting charges, and it must be remembered that in 1909 the dock labourer was paid the low rate of wage of 6d. per hour, a 48-hour week being the rule.

In 1911 the docker's wage went up to 7d. an hour and a general increase of 7½ per cent. was made in the dock and warehouse charges. After the outbreak of the Great War, charges naturally had to be increased from time to time. The Authority's main charges reached their highest point in 1920, which represented an increase of 150 per cent. on the pre-war basis. The dock labourer's rate of pay then was 1s. 5½d. per hour, with a 44-hour working week. Since then, although the dock labourer's pay is 1s. 6d. per hour, the charges have come down to their present level, which is 80 per cent. higher than pre-war on goods and 48½ per cent. on ships.

RATIONALISATION.

A new word, "rationalisation," has recently come into use in relation to industry, and has been described as the combination of effective manufacturing units and the abolition of redundant units with the result that waste and loss are eliminated and efficient output is obtained at the lowest possible cost. A good deal is involved in this brief description. It implies the modernisation of plant, the full use of machinery in all directions, and the effective organisation of management and labour. It has been stated that the process of rationalisation has probably proceeded further in Germany than in any other country, but there are signs that this country is fully alive to the situation. While the term was apparently applied originally to manufacturing, it has become extended to other businesses, such as banking. It is interesting to note that the first principle of what is now termed rationalisation, was carried into effect in the Port of London when the Port of London Authority was constituted, and the Authority have for some time past been engaged upon a definite policy of realising all the other principles of rationalisation in its truest sense. It has resulted in the adoption of machinery to aid the manual labourer whenever it could be done advantageously; this will be seen in the form of hundreds of electric trucks conveying goods along the quays, in mechanical conveyors, overhead cranes, meat conveyors and runways at numerous berths in the docks. It has resulted in the provision of elaborate machinery to aid the clerical labourer and the bookkeeper, in the form of typewriters, calculating machines, and so on. It has resulted in economy and made for efficiency. That there is still room for more economy and more efficiency is undoubted, and it is to this end that the Authority's efforts are being directed. It has been suggested that "rationalisation" may lead to "trustification" and higher prices or profits, but in connection with the Port Authority it can only result in lower charges, inasmuch as the Authority, unlike an ordinary business undertaking, are not concerned with the making of profits for shareholders.

LABOUR.

Reference has been made under the heading of port charges to the fluctuations in the pay of the dock labourer who has always presented a difficult problem on account of the irregular nature of his work. Parliament at the outset authorised the Port Authority to take such steps as they might think best calculated to diminish the evils of casual employment, and as early as the year 1913 the Authority appointed a staff of one or two thousand permanent labourers for the carrying on of their work. Six years later the Port of London Casual Labour Committee, under the chairmanship of Mr. Justice Roche, was set up by the Ministry of Labour to consider the problem of decasualisation and of methods to prevent undue immigration of labour into the port. This committee recommended that a registration scheme for the port workers of London should be brought into operation, and this was done.

The celebrated Court of Inquiry set up by the Minister of Labour under the Industrial Courts Act, 1919, and presided over by Lord Shaw, entered into the scene towards the end of 1919, and it will be remembered that it recommended that the dock labourers should have a minimum wage of 16s. per day, that a system of registration of dock labour should be introduced into all the ports, docks and harbours of the kingdom. About the same time, employers of labour at the various ports in the country, including London, formed themselves into a National Council of Port Labour Employers. Since that time all questions of rates of pay, hours of labour, and conditions of work of the dock labourers and other port

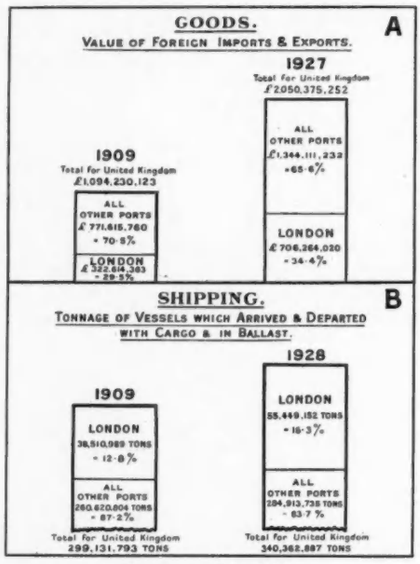
workers have been settled on a national basis between that Council and the men's unions.

Naturally, disputes have arisen from time to time, and the various settlements have not been effected without, on occasions, considerable difficulties. The last strike that took place was the General Strike of May, 1926, but it will be recollected that no dispute was involved with the dock workers, who went out in sympathy with the miners.

It is a pleasure to be able to record that for some time past the relations of the Port Authority with the official labour organisations have been of the most friendly character, the tendency being for labour to co-operate more with the employer with the object of obtaining greater output of work. All this is vitally necessary in order to enable the port to retain its present trade, attract further business, and provide more employment.

TRADE.

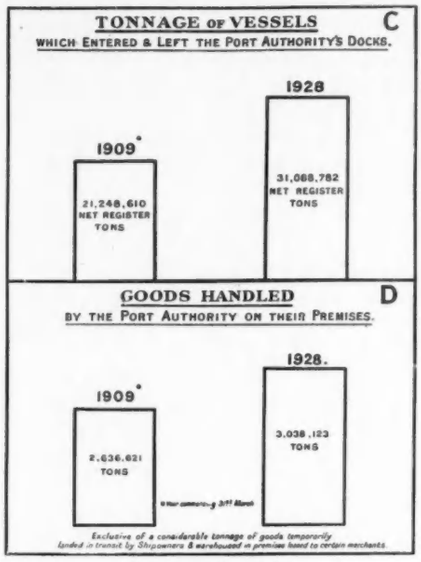
Under the regime of the Port Authority the trade of the Port of London has expanded enormously. At no other period during its long history has its business approached to anything like its present dimensions. The bare recital of statistics of shipping and goods tonnage will indicate the extent of the expansion of the port's trade, but the matter can better be illustrated by the diagrams produced. Diagram " A " indicates the value of the foreign trade of the port in 1909 and 1927. Diagram " B " shows the total tonnage of vessels that arrived and departed with cargoes and in ballast in 1909 and such annual tonnage in 1928. It will be appreciated that, as the year ending the 31st March, 1929, had not actually ended when this paper was written, the figures given are the latest available. They may be taken generally as representing the state of the trade now, the object being to give a fair comparison between the position of affairs in 1909 and that of the present time.



Diagrams A and B.

Diagram " C " indicates the tonnage of vessels that used the Authority's docks, and " D " the tonnage of goods actually handled by the Authority on their premises. It will be borne in mind that London is largely a barging port, which means that by far the largest portion of the goods imported is discharged from the importing vessels into barges alongside. This feature of the port has been a most conspicuous one for many centuries, and the allusion in the Royal Commission's report to " the river tides strong enough to transport traffic easily to all parts, yet not so violent as to make navigation difficult," was not so much a reference to the navigation of ocean vessels as to this barge traffic. On the waters of the Thames are 10,000 barges continually plying to and from the docks and the wharves and factories which line its 170 miles of tidal banks. The daily ebb and flow of the tide at a normal speed of from two to three miles an hour is a great factor in the transport of the barges and does not render their navigation difficult. Although towage of barges by steam tugs has increased of recent years, there are still numbers of sailing barges which rely on wind and tide for propulsion, while years ago the dumb barges relied solely on the tide. It is obvious that the conveyance of goods in these barges represents an exceedingly cheap method of transport, and the flow of traffic in such a channel is a natural consequence. While thus being a distinct asset to the port the barge traffic presents, in certain aspects, a problem of some little difficulty to the Port Authority.

London is not a bulk cargo port; instead of the arriving or departing vessels being filled with full cargoes of a few specific commodities, generally speaking, each ship has a cargo of miscellaneous goods, usually packed in cases or bags of varying dimensions, embracing both the necessities and the luxuries of modern civilisation, such as fruit, sugar, grain, tobacco, provisions, wines, spirits, carpets, silks, rubber, furs, marble, ivory, feathers, spices, and so on, in endless variety. Timber and grain are practically the only commodities imported in bulk. Rotterdam is an instance of a bulk cargo port, her principal imports being iron ore and grain, while her chief export is coal.



Diagrams C and D.

Incidentally, it may be remarked that port accommodation and cargo handling facilities can be provided at a cheaper cost at bulk cargo ports than at the others. At certain American ports one is specially struck by the extent to which it has been found possible to instal machinery to handle bulk cargoes. The capital expenditure required is huge, but the cost of handling per ton is small owing to the enormous quantities handled.

To close this section relating to the advance in the trade of the Port of London between 1909 and 1929, another diagram " E " is shown to illustrate the striking growth of certain of the imports dealt with by the Authority over their quays.

A factor that will bear upon the development of the Port of London is the marked tendency on the part of some branches of industry to develop in the South of England rather than in the North. Official publications have called special attention to the progressive development in the outer London suburbs and Home Counties and to the fact that, while some of the factories are due to an overflow from congested London areas, others represent entirely new businesses. This southern movement and the industrialisation of non-urban areas in the South of England are stated to be comparatively new phenomena, the full development of which lies in the future.

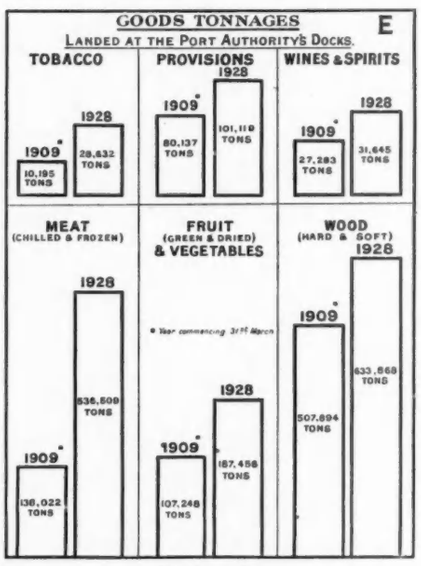


Diagram E.

The Royal Commission's report alluded to land along the shores of the Thames of a character suitable for dock construction and all commercial purposes. Since that report was written a deal of development has taken place on that land.

Several large and important industries have become established up and down the river during recent years, of which

special mention may be made of the paper, sugar and molasses, oil, earthenware and cement trades. The latest arrival apparently is the Ford motor concern, which will turn several hundreds of acres of quiet pasture land into a throbbing hive of human industry.

Although development is thus going on rapidly there are still many fine sites on the banks of the Thames suitable for industrial purposes, and with facilities for cheap transport and distribution.

CONSTITUTION.

The Act of 1908 stipulated that the Port Authority should consist of 28 members, ten of whom were to be appointed and eighteen elected. The appointed members were to be appointed as follows: One by the Admiralty, two by the Board of Trade (altered later to the Ministry of Transport), four by the London County Council (two to be members of the Council and two not), two by the Corporation of the City of London (one to be a member of the Corporation and one not), and one by Trinity House. With the view to providing for the representation of labour on the Authority it was directed that one of the members to be appointed by the Ministry of Transport should be appointed after consultation with such organisations representative of labour as the Ministry might think best qualified to advise them upon the matter, and that one of the members appointed by the London County Council should be appointed in like manner.

The eighteen members elected were to be elected by the payers of rates, wharfingers, and owners of river craft.

The Authority had power itself to appoint a chairman and a vice-chairman outside the membership if they deemed fit, but the first chairman was to be nominated by the Government. They appointed Sir Hudson E. Kearley, M.P., who became Baron Devonport in 1910 and Viscount Devonport in 1917 and who, as Parliamentary Secretary to the Board of Trade, had been closely associated with Mr. David Lloyd George, then President of that Board, in all the proceedings and negotiations that had led to the passing of the Port of London Bill. Lord Devonport occupied the position of chairman for sixteen years and was succeeded by the present chairman (Lord Ritchie of Dundee) in April, 1925.

The appointments of chairman and of the " appointed " members as well as the election of " elected " members is for three years.

From the remarks above made as to the appointment and election of the members it will be seen that the interests represented are wide. That they must be very wide is obvious from the fact illustrated that over one-third of the foreign imports and exports (expressed in value) of the United Kingdom pass through the Port of London. The population interested in this huge volume of trade must be enormous, and thus the port is not a purely local or parochial undertaking, but, to use the words of the Royal Commission, a great national concern. That Commission also alluded to the magnitude, wealth and energy of the population behind the port. For twenty-five miles behind, that population is over nine millions but many more millions are concerned in one way or another in the port. It is to the energy and enterprise of those millions of inhabitants that we must look for the retention and increase of the trade of the country, and consequently the prosperity of the port.

A final quotation may be made from that remarkable paragraph in the report of the Royal Commission which forms the keynote of this lecture: " We are, however, convinced that if in this great national concern, energy and courage be shown, there is no reason to fear that the welfare of the Port of London will be permanently impaired." From this brief retrospect of the work of the Port of London Authority it will perhaps be admitted by the most exacting critic that energy and courage have been displayed with the result that any fear of the port having been " permanently impaired " has long since vanished; so much so that any considerations relating to the port are now on quite a higher plane. It is only to be hoped that as the years roll on and round themselves into more decades, the history of the Port of London will still be a record of energy and courage directed to its further development to meet the needs of an ever-expanding trade of the British Nation and Empire.

LIMERICK DOCK EXTENSION.

Limerick Harbour Commissioners have decided, on the report of a special committee to construct a line of railway connecting the dock with the Great Southern Railway, via Mallow Street. The economic possibilities of the proposed railway have been placed before the Ministry of Industry and Commerce, and from the statement prepared it would seem that the Commissioners estimate the traffic at 70,000 tons at 1s. 6d. per ton. The cost of the proposed line is estimated at £19,000 and at a recent meeting of the Commissioners it was stated that their borrowing powers amount to £200,000, while they have a sum of £51,000 to credit.

Preparations are also being made for an extension of dock accommodation at Limerick.

Belfast Harbour Notes.

BELFAST HARBOUR INSPECTION.

On July 1st the members of the Belfast Harbour Board took part in the annual inspection of the estate and the staffs. At the headquarters of the Board the harbour police, 80 strong, assembled under the command of Major Armstrong and presented a fine appearance. Mr. R. E. Herdman, the chairman of the Board, who was accompanied by Mr. M. J. Watkins, the general manager and secretary, inspected the lines, and later congratulated Major Armstrong on the splendid appearance of the men. Mr. Herdman also referred to the service rendered during the year by three members of the force in preventing crime, and thanked the three men, who were brought forward.

The pilots were afterwards inspected, and the Commissioners then passed on to the workshops, which have recently been reorganised, and later viewed the improvements made at Clarendon Dock and Donegall Quay, where the transport of goods has been greatly facilitated. The new transporter cranes for handling the cargoes of the new Belfast and Liverpool steamers were also viewed, as well as the new centre for coal distribution on the Co. Antrim side of the river.

After visiting the new reclamation area, which extends to about 200 acres, the Commissioners proceeded down the Lough on the tender " Musgrave " to see the buoys, the outer lighthouse, and the outer pilots. The members had lunch on board and later held the usual monthly meeting, when the Harbourmaster presented his report. It is shown that 276 vessels arrived at the port during the period June 16th to 29th as follows: Coastwise and cross-channel 259, foreign 14, non-trading 3. The total tonnage of the vessels which arrived from January 1st to June 29th, coastwise and cross-channel, was 1,192,262, an increase of 89,642 over the corresponding period of the previous year; foreign, 293,737, an increase of 5,579; non-trading, 48,260, an increase of 7,561; total, 1,534,259, an increase of 102,782.

It will therefore be seen that Belfast as a port is going ahead, in spite of the keen competition, while the Commissioners are keeping abreast of the times in extensions and improvements.

BELFAST AS AN AIRPORT.

The prospect of Belfast becoming in the near future one of the most important airports in the three kingdoms is improving every day. Negotiations have been proceeding for some time past between the Harbour Board and the National Flying Services, Ltd., for a site for the new landing-place on the Harbour Estate. The Board asked for a rent of £600 for the site; but the company declined to pay more than £200, plus a percentage of the landing fees to be paid in respect of aeroplanes not belonging to the company's organisation or owned by members of the company's clubs.

The demand of the Board was, of course, perfectly justified, as it was bound by law to secure an adequate rent for any part of the estate leased.

Steps have now been taken to procure the margin between the Board's demand and the company's offer. A meeting of representative citizens was held on the 4th ult. in the City Hall, under the chairmanship of the Lord Mayor, to devise ways and means of raising the sum. After discussion it was decided to ask the Ulster Government to subsidise the project to the amount stated; it being pointed out quite truly by several speakers that the scheme would be of great benefit, not only to Belfast, but to the whole of Ulster.

It is generally believed that the Government will grant the necessary sum at once, and when this is done th construction of the aerodrome will be pushed on with the utmost despatch. There will be 22 airports in Great Britain and Ireland, and Reading and Belfast will be the first two to be equipped.

The aerodrome at Belfast will be a great advantage, not only to Ulster business men, but to passengers landing at Belfast from the Atlantic liners. It is hoped with the provision of airship facilities that additional shipping companies will use the port and thus begin a new and promising chapter in the history of the port of Belfast.

RECORD TRANSATLANTIC TRAFFIC.

Between July 6th and 8th a new record for transatlantic traffic was set up at Belfast harbour.

The Anchor liner " Caledonia " came direct from New York with 600 passengers.

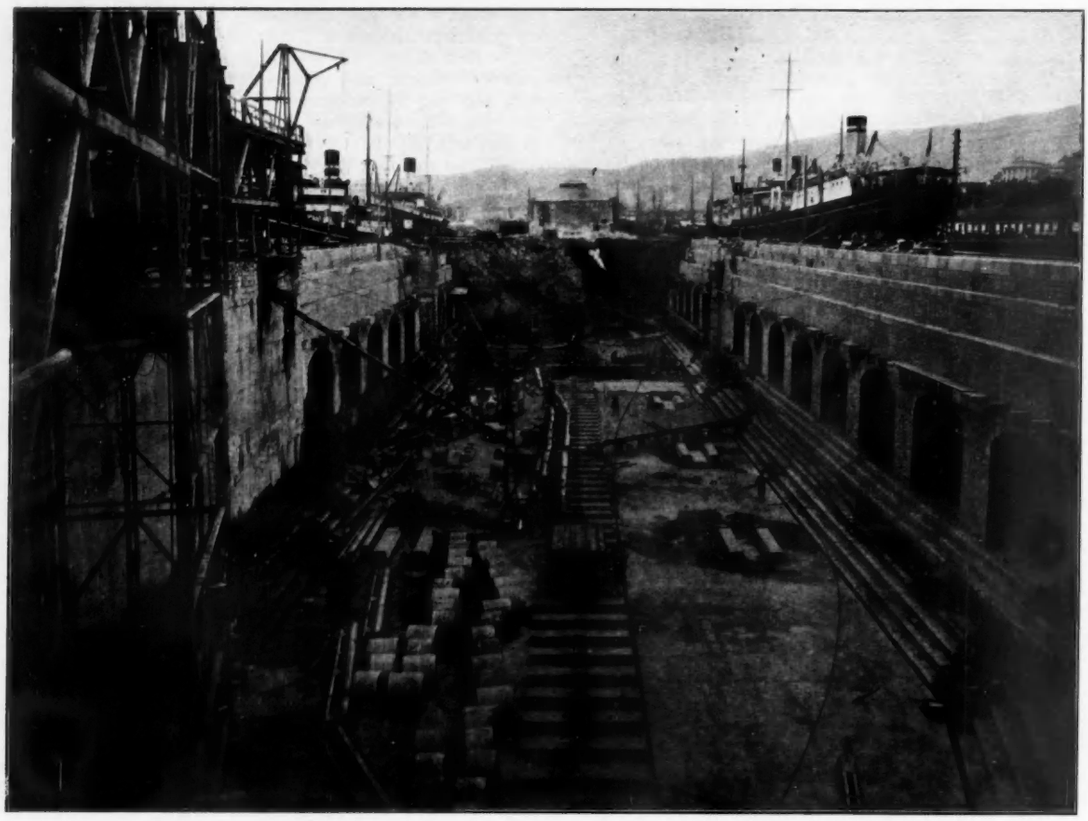
The Cunard liner " Antonia " called on her way from Liverpool to pick up a large contingent from Ulster for Quebec and Montreal.

The Anchor-Donaldson liner " Athenia " landed close on 100 passengers from the New World.

The Canadian Pacific liner " Melta " also took aboard on her outward voyage a large party.

Elaborate arrangements were made by the Harbour Board staff to deal with the rush, and two extra tenders—the "Seymour " of Londonderry and the " Paladin " of Glasgow —were requisitioned to convey the passengers to and from the liner. The arrangements worked smoothly, and the travellers were loud in their praises of the facilities given to them.

Italian Harbour Affairs.



The Construction of the Second New Large Dry Dock at Genoa.

The Extension of the Outer Breakwater at Genoa.

Italian Harbour Affairs.

THE amount of shipping at Italian ports during the first five months of 1929, as compared with the same period for 1928, is shown by the following figures:—

ARRIVALS—	1929.	1928.
Number of ships	74,917	68,682
N.R.T.	30,998,914	28,910,048
Tons of goods	11,509,834	11,283,231
CLEARANCES—	**1929.**	**1928.**
Number of ships	75,140	68,770
N.R.T.	30,709,182	28,785,698
Tons of goods	3,462,961	3,223,911

As can be seen, shipping has shown a general increase; but it ought to be taken into consideration that Senator Ricci, for example, in the course of a speech delivered to the Italian Senate during the discussion of the Mercantile Marine Bill, pointed out that during 1928 shipping at Italian ports has shown an increase of 2,000,000 tons. The share of Genoa in this trade reached 1,000,000 tons. But if one considers the large imports of wheat owing to the bad wheat crop, and the large imports of coal owing to the desire of the Italian State Railways administration to accumulate stocks of coal larger than usual, it will be seen that the increase does not reach even 400,000 tons, which means the normal progress. However, concluded Senator Ricci, the port of Genoa must be enlarged to avoid congestion and the direct railway between Milan and Genoa should be built at once in order to facilitate railway traffic between Genoa and Central Europe. On the other hand, Admiral Cagni, the President of the Consorzio Autonomo del Porto di Genoa, has announced that up to June 15th, 1929, Genoese shipping had shown an increase of about 100,000 tons in respect to 1928, and that a new airport will be built in the Benito Mussolini Dock, while the large breakwater sheltering the inner harbour will be extended by 1,050 metres towards the mouth of the Polcevera River.

However, an idea of the general course of Italian shipping can be had if one examines the following figures regarding trade at the various Italian ports:—

	ARRIVALS			CLEARANCES		
Jan.-May	No. of Ships	N.R.T.	Goods (Tons)	No. of Ships	N.R.T.	Goods (Tons)
Savona—						
1929 ...	359	354,000	580,000	357	361,000	40,000
1928 ...	797	821,000	525,000	340	279,000	34,000
Genova—						
1929 ...	2,144	4,285,000	2,951,000	2,212	4,400,000	435,000
1928 ...	2,141	3,978,000	2,893,000	2,134	3,964,000	355,000
Spezia—						
1929 ...	348	232,000	275,000	252	230,000	10,000
1928 ...	272	363,000	269,000	271	370,000	7,000
Livorno—						
1929 ...	1,413	1,355,000	606,000	1,419	1,360,000	149,000
1928 ...	1,400	1,373,000	707,000	1,269	1,310,000	148,000
Civitavecchia—						
1929 ...	598	640,000	365,000	592	617,000	29,000
1928 ...	590	490,000	395,000	597	464,000	43,000
Napoli—						
1929 ...	3,476	4,343,000	875,000	3,574	4,339,000	127,000
1928 ...	2,820	4,122,000	924,000	2,819	4,143,000	124,000
Ancona—						
1929 ...	551	488,000	190,000	550	488,000	28,000
1928 ...	656	595,000	306,000	660	590,000	16,000
Venezia—						
1929 ...	1,500	1,724,000	1,026,000	1,574	1,712,000	170,000
1928 ...	1,385	1,675,000	1,074,000	1,357	1,645,000	120,000
Trieste—						
1929 ...	5,584	2,007,000	908,000	5,590	2,027,000	359,000
1928 ...	3,559	1,787,000	677,000	3,574	1,760,000	328,000
Fiume—						
1929 ...	1,490	914,000	206,000	1,484	912,000	153,000
1928 ...	1,494	864,000	194,000	1,141	866,000	149,000
Catania—						
1929 ...	737	805,000	185,000	737	790,000	72,000
1928 ...	342	278,000	236,000	795	816,000	92,000
Palermo—						
1929 ...	1,265	1,286,000	254,000	1,258	1,309,000	87,000
1928 ...	1,222	1,425,000	293,000	1,231	1,445,000	68,000

As can be seen, the situation has particularly improved at Trieste, while a new meeting has been held first at Siena and afterwards at Trieste to ensure further facilities to transit trade through Adriatic ports, and it has been decided to publish a pamphlet to illustrate in seven languages the advantages of these ports over North Sea ports. It is announced that the Marine Department at Rome has informed the Trieste Chamber of Commerce that they do not object to transferring the large Navy dry dock from Pola to Trieste, in order to avoid large ships such as the "Saturnia" and the "Vulcania" dry-docking at Pola, but that arrangements for this purpose must be made with the Minister for the Communications. On the other hand, efforts are being made to increase steamship connections with overseas markets, and through the reorganisation of the Navigazione Libera Triestina communication will be increased with South Africa, Belgian Congo, and North Pacific ports with a view to increasing the power of attraction of Trieste on Central European transit trade.

The increase of the depth of water in the St. Mark's basin in Venice has given an opportunity for the Orient liner "Orford" (22,000 tons) to anchor off St. Mark's Church. This has been the largest ship anchored in St. Mark's basin since the war.

The reported activity at various ports to improve the unloading and storage facilities has not ceased. The Consorzia Autonomo del Porto has entrusted to an Italian firm the construction of the Benito Mussolini Basin, involving an expense of 74,000,000 lire, while the S. Georgia Mole, measuring 2,100 metres and served by 40 electric elevators, has terminated in the Vittoria Emanuele Dock, and 16 electric cranes are under construction in the port of Genoa. Much progress has also been made at Naples, where the outer breakwater has been extended for a further 500 metres and the quayage at the Masaniello Mole has been extended another 350 metres. During 1929 it is expected that it will be possible to increase the quayage at Naples by 1,200 metres, and also to add 55,000 square metres of storage space.

It is confirmed that a credit of 175,000,000 lire has been allotted for enlargements in the port of Palermo, and that important works have been terminated at Messina, where about 600 metres of quayage and 42,000 square metres of storage space have been built. The growing importance of Messina is confirmed by reports regarding the demand that all ships crossing the Messina Strait should call at that port, and, as a matter of fact, the Cosulich Line of Trieste have established a direct connection between Messina and South America.

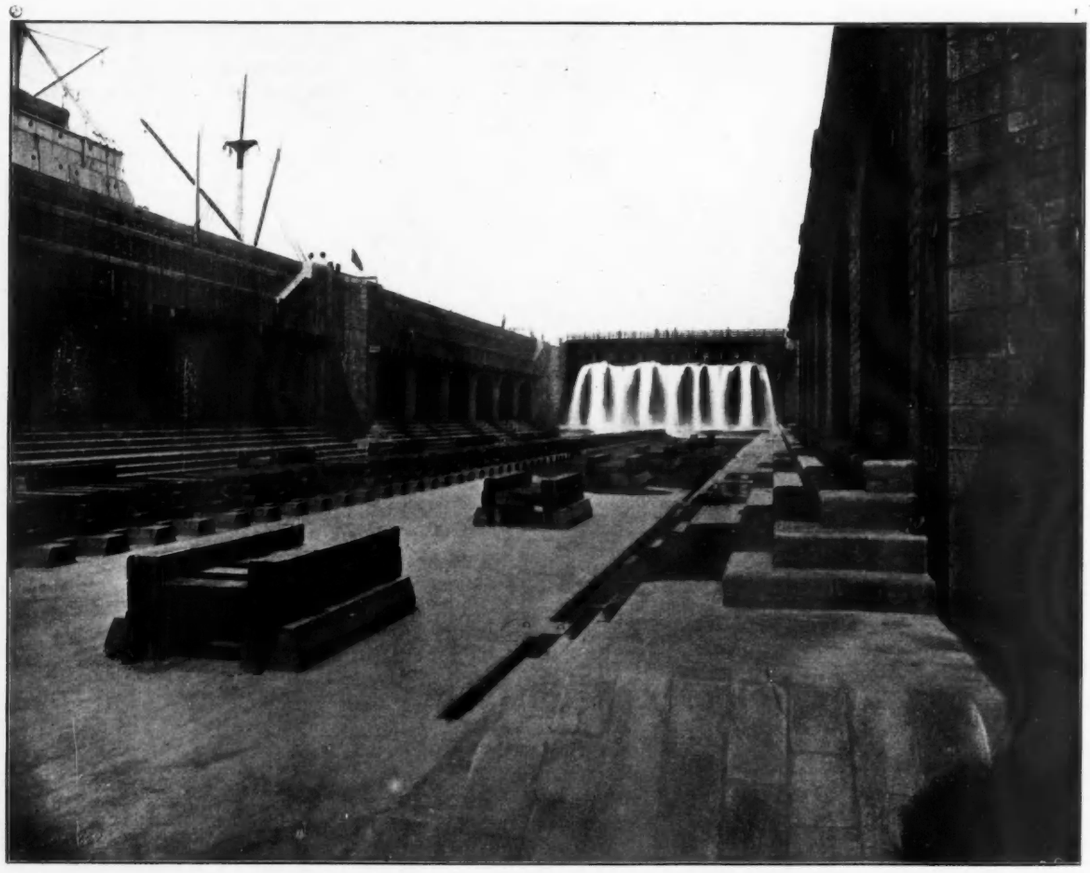
On the other hand, harbours on the southern coasts of the Adriatic, such as Brindisi and Bari, are also steadily growing in importance. With regard to the latter port, steamers of foreign lines, such as the American Export Lines, the Svenska Lloyd, and others, bound to the Black Sea and the Near East, have been calling here. However, it would appear that business circles at Brindisi do not intend that this port should remain behind, and a project has been worked out for the construction of two warehouses of about 5,000 square metres, a grain silo with a capacity of about 30,000 centals, the construction of a cold storage, and the construction of several electric cranes of capacities of 3 tons and 1.5 tons each. The railway connections between the port of Brindisi and the Italian State Railway Station at this harbour should be greatly increased. Efforts should be made to increase the speed of the trains on the line from Brindisi to Milan and Chiasso in order to facilitate transit of passengers from Western Europe to the East via that port.

According to cables from Fiume, it appears that several Hungarian business people who have recently visited that port have denied that Hungary will accept the Dietrich project favouring the development of Hungarian overseas trade through the Danube and the Black Sea ports; but it appears that the Hungarian Government intends to take advantage of the facilities offered by the Italian Government to exploit the port of Fiume, and it is confirmed that the Italian Government has authorised the construction of a large up-to-date grain silo at Fiume with a view to the export of Hungarian grain via Fiume.

Italian business circles are following with the greatest interest the development of the Yugoslav harbours, and according to the latest reports it would appear that the Yugoslav Government has decided to organise a free port in the Sussak harbour, where a large warehouse of 30,000 square metres would be built. For this purpose a credit of 20,000,000 dinars has already been granted. A further quay measuring 2,000 metres in length would be built at Martinschizza, near Sussak, which would be connected with the bay through a new railway. In the meantime, however, during the winter season the situation has become very difficult, as not more than nine freighters can stay in the port of Sussak at one time, while Fiume has room for 25 ships.

Italian Harbour Affairs.

The Pumping Plant of the New Dry Dock.



View of the New Dry Dock.

Control of Rolling and Lifting Bridges.

Bridge designers have found electricity the ideal motive power for operating the movable spans of bridges which cross navigable waterways, because electric drive is reliable and lends itself readily to the application of interlocking and indicating devices. So important has become this phase of electrical power application that several manufacturers have gone to considerable trouble and expense in designing control gear which is particularly applicable to movable bridge work.

Movable bridges are generally of three types:—

1. The Scherzer rolling lift bridge.
2. Transporter bridge.
3. Swing bridge.

One of the most interesting rolling lift bridges is that at North Wall, Dublin. This is a Scherzer rolling lift bridge with motor-operated gates, full automatic control under the action of a single master switch located in a cabin being arranged for. Limit switches were provided to give slow-down features in either direction, and to stop the bridge at the end of its travel. The bridge is double and is driven by two 25-h.p. 500-volt d.c. motors. The control apparatus consists of the following. Two automatic panels carrying reversing switches and an accelerating solenoid, a master switch, two limit switches, two retarding switches, a drum type limit switch, a light-up indicator, and a solenoid for the bolt-operating mechanism.

The sequence of operations of this interesting bridge are as follow: Assuming the bridge to be closed, the master switch is thrown over to the open bridge position (this switch has only two positions—open bridge and closed bridge). This has the effect of energising a clapper on the panel, which closes the circuit to the bolt solenoid, which then withdraws the bolt. Attached to the bolt-operating mechanism is the drum type limit switch, and when the bolt is withdrawn the limit switch is moved and lights up the indicator " bridge unlocked " and at the same time energises the d.p. magnetically operated main switches on both panels, causing them to close, thus starting up both motors in parallel. The bridge will then begin to open.

To the moving part of the bridge are fixed tappet-operated retard and final limit switches, and, the motor having accelerated up to full speed under the influence of the self-starter, the bridge opens at full speed until the tappet fixed on the stationary construction strikes the arm of the retard limit switch. This has the effect of de-energising the accelerating solenoid, which inserts all the starting resistance and a separate resistance across the armature in circuit, thus causing the motors to retard and to run at dead slow speed. The bridge therefore moves slowly until the next tappet strikes the arm of the final limit switch, which de-energises the main clappers, causing them to spring out and break the main circuit. This stops the motor and applies the brakes. In closing the bridge the reverse of these operations takes place. The bridge has its position automatically recorded at any other stage of its opening or closing.

Another example of a Scherzer rolling lift bridge is that at Inchinnan, the electrical supply in this case being three-phase a.c. There are two 50-h.p. motors working in parallel with one master drum and under the action of one time limit relay. A triple-pole main switch is provided in the line circuit of each motor, which allows either motor to be cut off at will. The reason for this is that under normal conditions one 50-h.p. motor will operate the bridge quite sastisfactorily, but in high winds two motors are necessary, and with the above scheme it is quite a simple matter to bring in the second motor.

The gates are hand-operated but locked electrically by means of solenoid-operated bolts. The bridge bolt itself is motor operated by a separate 1½-h.p. motor and controller. All operations are electrically interlocked with each other, and the usual slow-down features and luminous indicator are installed.

A bridge with a similar scheme is that at Bombay Harbour, except that in this case drum controllers are used to operate the motors instead of an automatic time relay and accelerating clappers. The two controller handles are coupled together, thus starting up both motors from one handle. The 1½-h.p. bolt motor is controlled by a small drum controller, the travel of the bolt being limited by tappet switches in either direction. The bolt is so interlocked with the bridge by means of another tappet switch that the bridge is prevented from being fully opened unless the bolt is fully open.

Dalmuir and Kilbowie are two similar swing bridges of 78-ft. 6-in. span, each having a double tram track and a footpath on either side of the road traversing the bridge. Gates are installed at either end of the bridge, and there are semaphore signals for the trams. Separate motors for closing the gates and jacking and swinging the bridge are provided. The complete control is brought to one master switch.

To prevent runaway trams from running past the signals and dashing on to the bridge, catchpoint solenoids are fitted at either end, so that the trams are diverted from their usual course on to side tracks. The semaphore signals are lit up at night with the usual red and green signals. The sequence of operations is as follows:—

1. Signal set to danger, and alarm bells are set ringing to warn traffic.
2. Supply disconnected from tramway wires through connections to bridge control gear.
3. First pair of gates nearly closed, allowing foot passengers to get clear.
4. Second pair of gates nearly closed.
5. First pair of gates closed.
6. Second pair of gates closed.
7. Bridge jacked.
8. Bolts withdrawn.
9. Bridge open.

The travel is restricted by limit switches, and slow features are employed, each operation being interlocked with the one preceding it, so that the sequence is automatically adhered to. A luminous indicator in the cabin shows the progress of operations as the bridge is being opened or closed.

The cycle of operations which takes place in opening and closing the bridge are as follow:—

The operator moving the handle of the master switch to the first position will energise the solenoids on the semaphore signals, setting them at " Danger," and at the same time energises the alarm bells situated at either end of the bridge, which continue to ring for a predetermined time. This operation is performed by a clapper switch on the panel, which closes the circuit to the solenoids on the semaphore signals and also energises the bell-ringing relay. Should it be necessary to ring the alarm bells again, a push button is provided on the master switch, so that as long as the button remains depressed the bell will continue to ring.

When the time interval has elapsed for ringing the bells, it is possible to move the master switch lever to the second position, in which position a change-over switch is operated to disconnect the electric supply from the tramway overhead trolley wires for a predetermined distance at either end of the bridge, and connect it to the control gear for gate opening and bridge swinging. The closing of the latter circuit also energises the solenoids for closing the runaway points, which remain closed as long as the tramway overhead wire remains disconnected. When the runaway points have been closed, circuit is made by means of auxiliary contacts on the solenoids to allow the gate-closing control gear to be operated when the master controller is moved to the third position. On moving the master lever to this position, the motor closing the first pair of gates will be started up and continue to run until a predetermined position is reached of, say, 18-in. before complete closure. This is accomplished by means of a screw limit switch attached to the gate-operating mechanism, which breaks the control circuit to the first gate, in this predetermined position, and at the same time removes the interlock, enabling the operator to move the master switch to the next position to start up the second gate motor. These gates will then close to a predetermined position in the same way as the first gates. This is accomplished by a screw limit switch attached to the mechanism; it will also remove the interlock, enabling the first gate to close.

Moving the master to the next position will fully close the first gate, which locks itself through a mechanical device operated by the gate motor. A further movement of the master switch closes the second gate, the central circuit of the gates motor being opened by their screw limit switches.

When the gates are fully closed, but not until then, a circuit is made to the motor controlling the screw jacks on moving the master switch to the next position. This motor then starts up, lowering the bridge on to the rollers. A screw limit switch is attached, which automatically stops the jacking motors when the bridge has been fully lowered. This then allows the operator to move the master lever to the next position, which energises the bolt-unlocking solenoid, causing the bolts to be withdrawn, and the bridge is now ready for swinging.

On moving the master to the next position, the automatic starter controlling the bridge-swinging motor is energised, and the bridge starts to swing until it is arrested by the tappet striking the arm of a limit switch, which will cause the bridge to be slowed down by inserting all the starting resistance and a separate resistance across the armature. The bridge is thus gradually retarded until another tappet strikes the arm of the final limit switch, which opens the motor circuit through the control panel. The bridge is now fully open.

When the swinging motor is stopped the master controller lever can be brought back to the off position, ready for reversing the cycle of operations.

To close the bridge, the master controller is moved in the opposite direction, step by step, first ringing the warning bells, then starting the bridge-operating motor, slowing it down, stopping when fully closed, operating the bolt solenoid to lock the bridge, opening the gates, reconnecting the overhead wires and releasing the catchpoints, and finally lowering the semaphore signals.

In cases of emergency, such as a fire engine or an ambulance wishing to cross the bridge when it is partly open, it is possible to reverse the cycle of operations, no matter what position the bridge is in.

The lighting up of the luminous indicators is accomplished by means of small interlocking switches situated on the various pieces of apparatus, and as each operation is completed the lamps automatically light up, so that the operator knows exactly when to move the controller handle to the next position.

One of the most interesting swing bridges in the country is that over the Keadby Canal, which has recently been put into operation. This is an electrically operated drawbridge carrying the L.N.E.R. main line from Doncaster to Grimsby over the South Yorkshire Irrigation Company's canal. A new installation of " all electric " two-position lower quadrant signalling has been carried out in this case. The bridge, which is under the signalman's control, is operated through the medium of a master controller which is so interlocked with the signal frame that before the bridge can be opened for canal traffic the safety of the rail traffic is assured and before rail traffic is resumed after closing the bridge the latter must be bolted and the rails on the moving span must be in true alignment with the fixed running rails.

Power is supplied at 110 volts for operating the bridge and signalling, two 60-cell secondary batteries with a capacity of 460 ampere hours at the 10-hour rate being installed for the purpose. The charging and discharging functions of the battery are controlled from a battery panel fitted with all necessary switches, instruments, and protective devices. Special interlocks are fitted to the switches which ensure that the batteries can only be charged up singly, but when on discharge for bridge operation both batteries are paralleled, and the interlocked switches permit of a continuous supply from either battery for the signal frame and lighting irrespective of whether the batteries are paralleled for bridge operation or are in process of being charged.

The signal frame consists of 36 levers and is of the British Power Railway Signalling Company's " all electric " type. The levers, spaced at 3-in. centres, operate a series of contacts which in turn energise the motor-operating circuits for the various functions—e.g., points, signals, rail detectors, etc. In the case of point operation the circuit is taken direct to the point machine, while in the case of signal operation the circuit is threaded through the various track relays applicable to the route set up.

Special features of this type of signal frame are the dynamic indication of the particular function operated, and a cross protection device which prevents any unauthorised movement should wires become crossed. The dynamic indication forms a check on the movement between the lever and the operated function. The energy for supplying this indication is supplied from the momentum of the motor after accomplishing its work, and which generates a momentary dynamic current. This dynamic current energises an indicator relay which in turn completes a circuit from the signal frame busbar to an indicator solenoid, the soft-iron core of which operates on a cam slot in the lever slide, thereby automatically completing the stroke of the lever, proving that the function has operated correctly.

The levers working points have normal and reverse indication, but signal levers are only equipped with indicators for the normal position. The reason for this difference is that should a signal lever be reversed and the signal motor fail to respond no safety features would be sacrificed. The cross protection feature is secured by inserting a polarised relay in the circuit of each function so that all operating and indicating currents must pass in the direction to maintain the relay's contact closed. Should current from an outside source get on to an operating wire, it would pass through the polar relay in the reverse direction, thereby tripping the relay contact. A series circuit is taken over all the polar relay contacts, which energises a retaining magnet fixed on a circuit breaker controlling the main supply to the signal frame. Immediately one of the polar relay contacts is tripped the circuit breaker is " thrown," thereby cutting off the supply and preventing any improper movement of a function.

The interlocking between the master controller and signal frame is governed by a king lever. Before the latter can be pulled to release the master controller, all signals governing the approach to the bridge must be at " danger " and all points leading normally to the bridge must be reversed to divert anything running back or over-running signals; also, the rail detector must have been withdrawn. Immediately the king lever is reversed the releasing levers are backlocked, and as soon as the master controller is moved out of its normal position the king lever becomes backlocked, thereby retaining a positive control over rail traffic. After the bridge has been closed and the master controller returned to its normal position the backlock on the king lever is only released provided the bridge bolt has operated. Placing the king lever to normal restores the lock on the master controller and also releases the backlock on the rail detector levers. The latter having been put normal proves the correct alignment of the running rails, locks the king lever " normal," and permits the resumption of rail traffic over the bridge.

This bridge and the swing bridges at Beccles and St. Olaves present the latest practice in this country in automatic electric operation. The contractors for Keadby Canal bridge were Sir William Arroll & Co., Ltd., and the contractors for the other two were the Horseley Bridge and Engineering Co., Ltd. The writer is indebted to these firms, the London and North-Eastern Railway Company, and the Igranic Electric Company, who designed the control gear in the three bridges, for the above details.

North-Western Ports.

NEW CROSS-CHANNEL SERVICE.

A Workington—Isle of Man passenger service started on June 27th, and will be continued throughout the summer, negotiations between the Isle of Man Steam Packet Company and the West Cumberland traders having been satisfactorily concluded. The crossing of thirty-four miles will be made in three hours, the time of departure from Workington being fixed in accordance with the arrival of trains from Carlisle bringing Edinburgh, Glasgow, and East Coast travellers.

WHITEHAVEN HARBOUR BOARD.

At the annual meeting of Whitehaven Harbour Board, it was stated that the income for the year ended March 31st last was £19,734, a drop of roughly £3,000. The chief decreases were in foreign tonnage dues, which were £1,600 less than last year, and in the dues on goods exported, which were £1,200 less. The shipments of the coal to foreign ports amounted to only 52,000 tons, as against 113,000 tons in the previous twelve months, and of those 52,000 tons 40,000 tons were shipped in the first half of the year. There has been no sign of improvement in this trade since the beginning of the new financial year. This is particularly disappointing, as the Commissioners have made reductions in the dues in the hope of a development of the coal trade to the Continent. During the year over £5,000 was expended for the purchase of a dredger, and the amount spent on maintenance costs had grown from £1,751 to £2,188. The Board has been able to pay full interest in all classes of bonds during the year, and for the half-year ended December 31st were also able to pay an instalment off the arrears of interest in Class " A " bonds.

PROGRESS OF FLEETWOOD WORKS.

A start has been made at Wyre Dock, Fleetwood, in pulling down and reconstructing the fish box conveyor. The structure takes the form of an overhead carrier erected on steel pillars, and the boxes are removed from the box yard to the fish merchants' overhead lofts on the fish stage by means of an endless chain designed with the object of expediting the conveyance of the boxes from the railway siding to the box lofts. The removal of the conveyor was necessary consequent upon the fish market £100,000 extension scheme which is now in progress. Behind what is known as the " herring arm " of the market, along the south-easterly side, gangs of men are gradually effecting a big transformation. A new roadway is being formed, sidings have been altered and new sidings are in course of construction, providing for the present fish stages being doubled in width. Steelwork is also being erected for the second storey, to which the fish merchants will be transferred.

MORE TANKS FOR ELLESMERE PORT.

Ten more oil tanks are being erected on the banks of the River Mersey at Ellesmere Port. The number at present in use is 68, painted in various colours and grouped on the 300 acres reserved for this industry alone. Here, there is storage capacity for 60½ million gallons of crude oil, petroleum and motor spirit. Anyone who has not been to Ellesmere Port since 1922 would be astounded at the increase in the number of tanks in the intervening period. The site chosen for the fostering of this new industry of oil refining is almost ideal. Ships discharge their cargoes on the south side of the Manchester Ship Canal, and the oil is then carried many hundred yards by specially laid main pipes 70-ft. below the ground level, and 40-ft. below the canal bed, to the main storage tanks. The oil refineries of the district had a somewhat romantic start. " Low flash " oils were banned on the canal beyond Stanlow. This led to the construction of an oil dock and depot there, and from these small beginnings the great industry of to-day has grown. The Shell-Mex Company owns 37 tanks, which hold nearly 27 million gallons, together with a refinery which employs 400 people. Then there are the British Petroleum Company's tanks, ten of them still under construction. The others are those of Redline, Ltd., Anglo-American and British-Mexican. In some quarters one dock is considered scarcely sufficient to meet the growing needs of the huge industry, and it is thought that before long another and larger receiving station may be required. Oil refining has given rise to another industry, namely, the utilisation of the by-products which are left over from the crude oil. With these, a new sort of asphalt is made for road-making purposes.

The Port of New York.

VALUE OF COMMERCE AT THE PORT.

Exports through the port of New York for the month of April again show a per cent. increase approximately equal to that for the first three months of this year. The latest available figures, issued by the local office of the United States Department of Commerce, show that for the month of April, 1929, exports amounted to $159,918,000, as compared with $131,481,000 for April, 1928. This represents an increase of more than 20 per cent. over the month, and compares with a corresponding increase of but 17 per cent. for all ports of the United States.

Although for the first three months imports through the port of New York have increased but slightly, the increase for the month of April, 1929, over the same month in the preceding year amounts to more than 20 per cent., a slightly larger gain than that for all ports of the United States, which amounts to 19 per cent. In April, 1929, imports amounted to $200,158,000, as compared with $165,867,000 for April, 1928.

An analysis of exports through the port of New York for the month of March shows that increases occurred among a well-diversified list, although manufactured and semi-manufactured products registered the largest gains. For the first quarter of 1929, automobiles and parts showed an increase of 58 per cent. over the corresponding quarter of last year; industrial machinery, iron and steel manufactures, and paper manufactures increased by more than 40 per cent.; copper manufactures by more than 35 per cent.; rubber manufactures and automobile casings by more than 25 per cent.; and cotton manufactures by more than 20 per cent.

Apples continue to be exported in large volúme, owing in part to a short crop in Australia and two successive short crops in France. According to the American Consulate at Paris, the impression of the fruit trade there is that the increased importation of American apples is likely to be permanent, because of the favourable price of American barrelled apples, which brings them within the reach of the poorer classes. Exports of apples for New York for the first quarter of 1929 amounted to more than five times that in the first quarter of 1928.

COMMERCE AT PORT NEWARK.

The movement of lumber into Port Newark for April, 1929, increased by more than 15 per cent. over the corresponding month last year, and general cargo, inbound, increased by 3 per cent. In April, 1929, 44,618,000 board feet of lumber and 38,933 tons of general cargo were brought in by 51 vessels, lighters and barges, as compared with 38,737,000 board feet of lumber and 37,765 tons of general cargo moved in 52 vessels, barges, and lighters in April, 1928.

GRAIN MOVEMENT.

Figures furnished by the United States Department of Commerce on the movement of grain through the port of New York for the month of March, 1929, show a decrease of 5 per cent. from the preceding March, largely due to the unsettled wheat situation.

There were 7,910,000 bushels of grain exported through the port of New York in March, 1929, as compared with 8,344,000 bushels in March, 1928. The exports of domestic coarse grain, however, continues in large volume, amounting to more than 2½ times the volume exported in March, 1928.

VESSEL MOVEMENTS IN FOREIGN TRADE.

Vessel entrances and clearances showed a decided increase in April, 1929, the number of vessels being 11 per cent. greater and the tonnage 8 per cent. greater than the corresponding movement in April, 1928.

There were 611 clearances and 634 entrances in April, 1929, as compared with 547 clearances and 570 entrances in April, 1928. These figures include vessel movements both direct to and from foreign ports, and via other United States ports.

The tonnage of vessels entered in April, 1929, amounted to 2,705,000 and those cleared amounted to 2,564,000, as compared with 2,500,000 and 2,375,000 entered and cleared respectively in April, 1928.

STEAMSHIP SAILINGS.

Compared with the month of March, the grand total of all sailings for the month of April remained about the same. Foreign sailings, however, showed a small decrease, due to the fact that there was one less Saturday in April. Saturday usually accounts for 8 to 10 per cent. of the total foreign sailings.

The peak day of the month was Saturday, April 20th, with a total of 102 sailings. Of these, 53 were engaged in foreign service and 49 in domestic trade. Included in the foreign service were 18 sailings to the Caribbean-Mexican ports.

Opening of the Hudson River freight service to Albany and Troy is reflected in the increased number of commercial sailings to river points. Whereas there were 132 such sailings in February, mostly to local points no further north than Poughkeepsie, this has increased to 199 in April, with the probability that this number will be exceeded in May.

PERISHABLE FOOD SUPPLY AT THE PORT OF NEW YORK.

Perishable food receipts for April, 1929, increased by more than 8 per cent. over April, 1928, the largest gain amounting to 32,900 tons, or about 21 per cent., scored by the fresh fruit and vegetable group.

Receipts for all perishables amounted to 440,773 tons, or the equivalent of 39,600 cars, as compared with 407,000 tons, the equivalent of 37,600 car lots. In addition to fresh fruits and vegetables, butter and dressed meats showed increases, while live stock, milk and cream, cheese, and dressed poultry declined from the corresponding month last year.

WAREHOUSES.

At the end of March, 1929, the United States Department of Commerce reported that public merchandise warehouses in New York State were occupied to the extent of 62 per cent. of capacity, and those in New Jersey to 76 per cent. of capacity, while for the entire country the average occupancy stood at 70 per cent. This compares with 52 per cent. occupancy for New York, 74 per cent. occupancy for New Jersey, and 68 per cent. for the entire country in the preceding month.

THE CONGESTION MYTH AT THE PORT OF NEW YORK.

The perpetuation of the myth of " congestion " at the port of New York is an interesting study in social psychology.

During the war and its immediate aftermath the shippers found the seaboard clogged with freight on account of the abnormal strain thrown upon all shipping and transportation agencies. Naturally the port of New York, bearing the brunt of the wartime movement, was among the first to become congested. This situation gradually extended throughout the entire range of ports, and persisted until about 1920. Since then the railroad, warehouse, dock, and handling facilities at the port of New York have been greatly expanded, although the foreign trade is not equal to peak wartime levels. There has been no lack of transportation or handling facilities and no general congestion or delay in handling import and export freight at the port of New York in late years, yet the idea that the port of New York is congested and that foreign freight is delayed in handling still persists in many quarters, due to lack of information or due to propaganda spread by competitive ports.

The myth of port congestion at New York, of course, offers an argument to proponents of transportation arteries serving other ports. In a recent case before the Interstate Commerce Commission one of the arguments advanced for giving preferential rates to Southern ports was the alleged congestion of the port of New York. More recently the President of the Illinois Central Railroad published a statement booming the port of New Orleans, and inferring that the port of New York was congested. An article in the May issue of " National Waterways " quotes Mr. W. P. Bradley, President of the Detroit City Council, and a proponent of the St. Lawrence Waterway, to this effect:—

" Detroit pays $10,000,000 freight charges on automobiles shipped by rail to the seaboard annually, and it takes from two to three weeks to transfer this freight from railroad car to ship, because of the New York port congestion. Had we adequate waterway, we could ship these automobiles direct from Detroit to Liverpool for $10,000,000, and they would arrive there in 19 days, or, on the average, less time than it takes to extricate freight from the terminal congestion in New York."

The Port Authority has always been a keen critic of any conditions at the port which seem to make for congestion, delay, or excessive cost, and it therefore continually checks up the situation at New York. It has from time to time pointed out the inadequacy of pier stations and team tracks devoted to the handling of local merchandise freight and foodstuffs, and co-operated with the railroads in plans for relief of such congestion as occurred at these points; but its investigation of facilities for handling foreign and intercoastal trade reveals that there is no important congestion or delay, but, on the contrary, a splendid record of rapid and satisfactory port operations which is a source of gratification and pride.

Since 1920 nearly 10 miles of dock wharfage has been constructed in the port. Some of the terminal and dock companies recently testified before the Interstate Commerce Commission that they could handle 30 to 50 per cent. more tonnage than at the present time. The railroads stated that they could take care of 50 cent. more traffic. New warehouse space and new handling devices are being added continuously.

In answer to the statement of the President of the Illinois Central Railroad the traffic manager of a large manufacturing company recently observed: " As a shipper handling a great deal of business through the port of New York, we have found no congestion since the war period, during which all ports suffered, and great rapidity of handling materials. It would

be interesting if you would cite the instance or instances of congestion which you had in mind when making this statement."

Example after example may be quoted of rapid handling of export freight through the port. Automobiles are a case in point. Instead of the "two to three weeks" which the St. Lawrence waterway enthusiast claims that it takes to transfer an automobile from railroad cars to ship at the port of New York, deliveries are being made to shipside four days after the automobiles leave Detroit. One railroad specialising in this traffic has two piers set aside solely for export automobiles. One pier, accommodating 250 carloads of automobiles, is equipped with two gantry cranes for transfer of boxed automobiles to floating barges. These barges are promptly dispatched to shipside. The other pier handles unboxed automobiles, a special elevator transferring the automobiles up the shipside to side ports, through which they are run into position and blocked. A full cargo of 750 automobiles is usually loaded in three days at this pier.

Even a proponent of waterway transportation need not look beyond the port of New York for rapid service. Last season self-propelled barges made the journey from Detroit through the Great Lakes, New York State Barge Canal, and Hudson River in five days, completing delivery to shipside within 24 hours after arrival at New York. Inquiry among actual exporters of automobiles brings the unanimous response that they experience no congestion or delay at the port of New York.

The acid test of whether delay is experienced in making shipside deliveries is not the marshalling of a series of individual opinions, but the cold records of performance on all shipments. As far back as October, 1924, the Port Authority and the railroads made a joint analysis of every delivery by lighter to shipside within that month. The average elapsed time between the receipt of disposal order from the consignee and delivery at shipside was less than two days. This covered every type of commodity, slow orders as well as rush orders. This survey covered the busiest month of the year, when maximum demands were being made upon the transportation and port facilities. Since 1924 the railroads report that their handling time has been cut materially, making an even better general average record.

But, in spite of the testimony of shippers, the evidence of expanded facilities, and the citations of actual records in handling export and import freight, we may still expect some zealous proponent of competitive ports or competitive transportation companies to drag out the hoary legend that New York is a congested port.

DOCKAGE IN NEW YORK HARBOUR REQUIRED BY SHIPS.

A recent check-up of the vessels docking in the port of New York furnishes food for thought with respect to the size of the port. There were 259 vessels in port on October 3rd, 1928. Their draft and total length were as follow:—

Draft.	No. of vessels.	Total length (ft.)
Up to 15-ft.	10	1,637
15-ft. 1-in. to 20-ft.	33	9,811
20-ft. 1-in. to 25-ft.	117	43,288
25-ft. 1-in. to 30-ft.	80	34,500
30-ft. 1-in. to 35-ft.	15	8,050
Over 35-ft.	4	3,292
Total	259	100,578

Placed end to end, these ships would require more than 100,000 lineal feet, or 19 miles, of side wharfage. No single waterfront in the port can accommodate them. They were distributed by waterfronts as follows:—

WATERFRONT.	No. of ships.
Edgewater, Hoboken, Jersey City, Bayonne, etc.	33
Newark Bay	17
Arthur Kill and Raritan Bay	7
Staten Island	19
Manhattan	48
Brooklyn	73
The Bronx	2
Yonkers	4
Anchored, off shore	22
In dry docks	24
Total distribution	259

Statistics of dockage space alongside of piers more than 200 feet long and with a minimum 20-ft. water depth were presented to the Interstate Commerce Commission in Docket F.S.A. 2040 et al., a year ago. All piers above the stated minimum, used for industrial or commercial purposes, were included, with the exception of the oil piers on the Bayonne peninsula and piers in the ship repair yards. This showed a total of 327,000 lineal feet distributed by waterfronts as follows:—

WATERFRONT.	Dockage space. Lineal feet.
Manhattan—North River	79,744
East River	28,413
Brooklyn	101,569
Staten Island	42,201
New Jersey—Hudson River	62,237
Port Newark	13,000
Total	327,164

Despite its volume of ocean shipping and its miles of improved dock facilities, the port of New York is by no means expanded to its utmost capacity. United States Army engineers give the total waterfront for the entire port, measuring around piers, at 994.8 miles, of which only 346.5 miles are improved. There is plenty of room left for further development.

PORT PROTECTION.

The port of New York has been relieved of one overhanging threat of discrimination, by the refusal of the United States Shipping Board to grant the petition presented by the Maritime Association of the Boston Chamber of Commerce requesting the cutting of rates on Shipping Board vessels between Boston and United Kingdom and Continental ports. The effect of the petition would have been to give Boston a differential over the port of New York of two cents per hundredweight on cargoes in Shipping Board vessels routed by way of Boston.

The Port of New York Authority protested at the hearings against any adjustment of ocean rates not based on an equalisation of through rates fom competitive territory, and was therefore opposed to a cut in ocean rates from Boston if not broadened to include the port of New York. It favoured a parity of combined rail and water rates to all ports as a means of attracting a share of freight proportionate to the importance of the port.

Launch of H.M. Submarine "Proteus."

The Permanent Secretary of the Admiralty, Sir Oswyn A. R. Murray, K.C.B., and Lady Murray visited Barrow on July 23rd, where Lady Murray performed the ceremony in connection with the launch of the "P" Class submarine "Proteus" for the British Admiralty at the Naval Construction Works of Vickers-Armstrongs, Ltd. The ceremony was of a quiet nature, and, in addition to Sir Oswyn and Lady Murray, only the British and foreign officers stationed in Barrow and the principal officials of the Barrow Works were present.

The "Proteus" is the third of the "P" Class submarines to be launched at Barrow, the "Perseus" and "Poseidon" having been launched in May and June respectively. The fourth and last of the submarines ordered under the 1927 programme from Vickers-Armstrongs will be launched next month at the same time as the destroyer "Arrow."

One hundred and fifty-five submarines have now been launched from the Barrow yard, and even to glance at the massive hull of the "Proteus" as she took the water was sufficient to show the giant strides that have been made in the design of submarines since the earliest boats built in this country were launched from the same yard. With this progress the firm of Vickers has always been associated. They were one of the first companies in the world, and the very first in this country, to recognise the possibilities of the submarine, and an organisation has been built up and maintained uninterruptedly for the efficient and rapid construction of these boats. During the Great War this organisation was taxed to the utmost, and not only were large numbers of submarines constructed and delivered to the fleet from the Barrow yard, but generous assistance was also given to other firms who were called upon to build submarines during that period. Since the war the firm has still kept its foremost place in submarine building, and it is interesting to note that, with the exception of five, all the submarines ordered by the British Government from private yards since the war have been constructed at Barrow. In addition, the company was successful in securing the order for three "O" Class submarines for the Chilean Government, one of which has already been handed over to the Chilean Government, and the others are nearing completion.

It can be readily realised that the present is an anxious time for all firms engaged on Naval construction, and the Barrow works (and the town of Barrow which so largely depends on these works) is vitally concerned in the policy that is to be pursued with regard to Naval Disarmament. The work in hand is steadily going on towards completion, and, with nothing visible to take its place, the mind naturally reverts to the terrible times experienced after the brief post-war boom and before the resumption of Naval shipbuilding, and one wonders if such times are to return in the near future. Needless to say, the firm are alive to the possibilities of the situation, and everything is being done, and will continue to be done, to secure suitable work in other directions, but it must be remembered that the works are primarily adapted for Naval construction, and no other work can employ the whole of the facilities in the same way as war-ship building.

Quebec Harbour.

Commissioners' Report for the year 1928.

Aerial View of Quebec City, and of the Harbour Commissioners' facilities for deep draught vessels.

QUEBEC HARBOUR FACILITIES.

THE facilities available at Quebec may be summarised as follows:—

Steamships Berths.—In wet dock, 6 berths of from 400 to 500-ft. in length; in tidal harbour, 4 berths of from 400 to 500-ft. in length; breakwater, 4 berths of 500-ft. in length, or 3 berths of 700-ft. in length, or 2 berths of 1,100-ft. in length; Pointe-à-Carcy Wharves, 4 berths—one ocean, two coasting, and one bunkering; River St. Charles Basin, 7 berths of from 500 to 600-ft. in length.

Depth of water at low tide.—Wet Dock, 25 to 26-ft. at low tide; tidal harbour, 24 to 30-ft. at low tide; breakwater, over 40-ft. at low tide; Pointe-à-Carcy Wharves, opposite wharf 21: ocean berth, over 40-ft. at low tide; River St. Charles, 35-ft. at low tide.

GRAIN ELEVATOR.

A concrete fireproof grain elevator, with a storage capacity of 4,000,000 bushels; three marine towers for discharging lake boats, and 2,600 lineal feet of shipping conveyors, with a loading capacity of 90,000 bushels per hour. It has also a grain dryer, separators and bagging facilities.

FACILITIES AND EQUIPMENT FOR HANDLING CARGOES, ETC.

Four locomotives for switching cars; railway lines to all ships berths and sheds; one 50-ton floating crane; cars and scows for removing ships' ballast; five locomotive cranes, with a capacity up to 38 tons; city water, electric light and power installations.

GRAIN CARGOES.

Shipping capacity: 90,000 bushels per hour; unloading lake barges: 40,000 bushels per hour; unloading cars: 120 cars per day; drying grain: 3,000 bushels per hour; cleaning grain: 40,000 bushels per day.

Ships loading or unloading full grain cargoes are exempted from the payment of moorage and tonnage dues.

LANDING SHEDS.

No.	Location	Size	Area
14.—Crosswall	... ...	350 x 40	14,000
18.—Double-decked Passenger Landing Stage	... ...	440 x 36	31,680
19.—Pte-à-Carcy	... ...	450¼ x 80¼	36,103
20.—" Montcalm "	... ...	800 x 111	79,600
25.—Pier No. 1	... ...	557½ x 80	43,000
26.—Pier No. 1	... ...	737½ x 80	59,040
27.—Pier No. 1	... ...	955 x 80	77,280
28.—Bulkhead	... ...	776 x 75	58,200
29.—Bulkhead	... ...	1,000 x 102	102,000
Combined space of all sheds (ft. of floor area) ...			500,903

CATTLE BERTH.

Landing Shed No. 27 is thoroughly equipped as a cattle resting, feeding and loading station.

2,000 heads of cattle can be easily accommodated in the shed at the same time.

Vessels loading full cargoes of cattle are exempted from the payment of moorage and tonnage dues.

COAL CAPACITY AND BUNKERING (Anthracite and Bituminous).

Coal companies have five towers for discharging and loading coal.

Bunkering is done from barges and coal cars brought alongside the vessel.

FUEL OIL BUNKERING.

The Commissioners have a fuel oil pipe-line running from tanks on Louise Docks to berths 18, 25 and 26 at the breakwater and berths 27, 28 and 29 on St. Charles River front. Total capacity of tanks: 190,000 barrels.

RAILWAY FACILITIES.

The Quebec Harbour Commissioners have 16 miles of tracks on docks for handling of freight. Shunting on docks is done by Harbour Commission.

Since the completion of the Quebec Bridge (in 1917), the docks are accessible to all railways.

The Canadian Pacific Railway and the Canadian National Railways (Canadian Northern, National Transcontinental and Grand Trunk Railway) have their Quebec terminals right within Quebec Harbour.

GRAVING DOCKS.

The Harbour of Quebec possesses two graving docks; one 600-ft. long by 62-ft. wide at entrance; one (new) 1,150-ft. long by 120-ft. wide at entrance, capable of taking the largest vessels afloat, with workshops in connection capable of executing all required repairs.

COLD STORAGE PLANT.

The Commissioners have a modern cold storage warehouse, with fish house and power house.

The main warehouse has a capacity of 500,000 cubic feet, and the fish house, which is thoroughly equipped for the freezing of fish, has a storage capacity of 1,000,000 lbs.

THE REPORT.

The season under review has been a very satisfactory one.

The surplus of revenue over operating expenditures for 1928 has been $145,358.88, while an increase of 10 per cent. over the preceding year has been recorded, both as regards import and export goods handled.

The year 1928 may be termed as one of the most active construction periods in the history of the port of Quebec.

The works carried out cover a wide range of activities and may be summarised as follows:—

(a) The continuation of the construction works of the Wolfe's Cove Terminal facilities undertaken in 1925. These facilities, when completed in the fall of 1930, will provide four berths for the largest types of passenger vessels, two additional berths for large-sized freight ocean steamers, and two berths for canal-sized vessels carrying grain, the depth of water at these different berths being 40 feet at low tide.

(b) The erection on the breakwater of a two-storey steel-framed fireproof landing stage, measuring 440 feet in length and 36 feet in width, for the accommodation of ocean liners carrying passengers and immigrants, to replace the old wooden shed No. 18, which was destroyed by fire in 1927.

(c) The construction of an additional storage annexe of 2,000,000 bushels to grain elevator No. 2, bringing the total grain storage capacity to 4,000,000 bushels, with a new receiving and shipping house, lofter house, two travelling marine towers on the outer basin, and additional shipping galleries on the St. Charles River front.

These new elevator additions were carried out, under contract, by the Atlas Construction Co., Ltd.

The storage house is built entirely of reinforced concrete on wooden piles and has 116 circular bins and 84 interspace bins. The bins are 100 feet high, and over the bins is erected a steel-framed storey which accommodates the upper conveyor belts.

The receiving, shipping, and lofter houses are of structural steel with corrugated asbestos siding, and the floors and roofs are of reinforced concrete.

View showing progress of works at Wolfe's Cove Terminals, in Quebec Harbour, November, 1928.

The excavations for the foundations were commenced on May 21st and completed on June 23rd, 1928. Over 14,000 cubic yards of earth were removed. The pile-driving followed the excavations, and by June 25th some 5,000 piles were driven.

Close upon the piling came the reinforced concrete foundation slab measuring 465-ft. 6-in. long, 66-ft. wide, and 2-ft. thick, and on this the pier foundations and bin hopper bottoms were built. By August 8th everything was ready for the erection of the bins. Owing to the extreme length of the storage house, it was decided to build it up in two sections. The first section, 13½ rows of bins, was commenced on August 9th and took 16 days to complete. The second section, 15½ rows of bins, was started on September 6th and completed by the 19th.

On the completion of the bins, pouring of the floor slab was commenced. The storage basement floor, with an area of 20,740 square feet, was poured in five days, while the slab over the bins, measuring 27,000 square feet, took seven days to finish. Floors in the shipping and lofter houses were completed at the same time.

The construction of this additional storage house was sufficiently advanced to allow of grain to be stored therein on November 17th last, the space being urgently required to take care of the increased volume of grain moving to Quebec during the rush of the shipping season.

Full particulars of all these different works and of the several other minor improvements will be found in the Chief Engineer's report.

GRAIN MOVEMENTS TO QUEBEC.

The port of Quebec is slowly but steadily forging its way as a grain-shipping port as its modern facilities are better known to grain exporters and to navigation companies.

In the year 1920 the total grain receipts at the Quebec elevator amounted to 884,450 bushels, while during navigation season of 1928 the Commissioners handled 11,063,761 bushels of Canada's golden crop.

An adverse railway freight rate had in the past prevented the port of Quebec from securing its just share of the traffic originating in Canada for export.

In 1925 the Quebec Harbour Commissioners applied to the Board of Railway Commissioners of Canada for a readjustment of the railway freight rates, so as to place the port of Quebec on a competitive basis with the other ports of Canada.

On August 26th, 1927, the Board of Railway Commissioners, recognising Quebec's long-standing claims, issued an Order directing the railway companies to issue tariffs showing the same rate to Quebec as to Montreal on grain from the Georgian Bay ports to Quebec for export and on all traffic from Toronto and points west thereof for export.

The Order also directed that the rate on all rail movements of grain from Port Arthur, Fort William, and Armstrong to Quebec, over the Transcontinental Railway, was to be in future 18.34 cents per 100-lbs., or 11 cents per bushel, which is about equivalent to the rail and water rates combined from Port Arthur and Fort William via the Georgian Bay ports to Montreal.

This 11-cents rate per bushel was soon put into operation, and an initial shipment was made from Winnipeg to Quebec, via the Transcontinental Railway, during the course of the winter of 1927, which proved an unqualified success.

Since the completion, in the fall of last year, of the new elevator annex, grain has moved almost continuously on rail via the Transcontinental Railway from the Prairie Provinces to Quebec, and the Commissioners' present 4,000,000 bushel grain elevator is now full to capacity with different grades of grain for shipment overseas early next spring.

The steady growth in grain production in the Prairie Provinces has necessitated the expansion of the shipping facilities at the different Canadian ports, as all the outlets are required in order to allow the marketing of our national crop with the greatest possible despatch.

The conditions which prevailed during the shipping season of last year have fully justified the Quebec Harbour Commissioners' decision and action in increasing their grain elevator storage capacity. These new facilities, however, could not be utilised to full advantage owing to the lateness in the season when completed, but from information presently available and the business which offered since the completion of the new storage house this grain trade to Quebec will receive during next season a greater impetus than in former years, and it is anticipated that with a doubled elevator capacity the Commissioners will more than double during next season the volume of their grain shipments of the preceding year.

AMERICAN ASSOCIATION OF PORT AUTHORITIES.

The American Association of Port Authorities, of which the Quebec Harbour Commissioners are members, held its 1928 Annual Convention in Houston, Texas, in November last.

The Commissioners were represented at the sittings of the Convention by Brigadier-General T. L. Tremblay, their general manager and chief engineer, who had the distinctive honour of being elected as President of the Association for the ensuing year.

It is gratifying to report that Quebec has been chosen as the meeting place for the 1929 Convention.

Summary of the Operations of the Different Departments of the Commission during 1928, as Compared with the Year 1927.

REVENUE.

Revenue in 1928	$788,490.18
Revenue in 1927	$702,310.01
Increase in 1928	$86,180.17

OPERATING EXPENDITURES.

Expenditure in 1928	$643,131.30
Expenditure in 1927	$631,539.73
Increase in 1928	$11,591.57

The surplus of Revenue over Operating Expenditures for 1928 has been $145,358.88.

MOVEMENT OF VESSELS (Ocean and Coasting).

(From the Sea, Montreal, and the Great Lakes).

1927	1,096 vessels
1928	1,095 vessels
Decrease in 1928	1 vessel

RAILWAY TRAFFIC DEPARTMENT.

Cars handled in 1928	40,093 cars
Cars handled in 1927	34,435 cars
Increase in 1928	5,658 cars

GRAIN ELEVATOR.

Grain received in 1928	11,063,761 bushels
Grain received in 1927	9,441,698 bushels
Increase in 1928	1,622,063 bushels
Grain delivered in 1928	10,267,082 bushels
Grain delivered in 1927	9,773,376 bushels
Increase in 1928	493,706 bushels

There remained in the elevator at December 31st, 1928, 2,129,340 bushels, as against 1,332,662 bushels at the end of December, 1927.

IMPORTS AND EXPORTS (Ocean and Coasting Vessels).

IMPORTS.

	1927 Tons	1928 Tons
Grain received	283,250	331,913
Coal	405,037	408,305
Fuel oil	110,048	128,675
Other cargo	148,841	138,693
	947,176	1,007,586

Increase in 1928: 60,410 tons.

Lumber and Timber: 13,331,680 F.B.M. 10,366,090 F.B.M.

EXPORTS.

Grain delivered	293,201	308,012
Other cargo	106,286	144,333
	399,487	452,345

Increase in 1928: 52,858 tons.

Lumber and Timber: 8,449,088 F.B.M. 12,502,831 F.B.M.

Horses ... ... 2,810 heads 2,041 heads

IMMIGRANTS.

Landed in 1927: 64,381 Landed in 1928: 74,644

CHIEF ENGINEER'S REPORT.

Works of new construction and improvements in the port of Quebec for the year 1928 are as follows:—

PRINCESS LOUISE DOCKS.

Dredging.—The Commissioners' bucket ladder dredge No. 2 was not placed in commission during the past season. The Suction Dredge No. 3 was operated during the months of July and August dredging at Atkinson's wharf to a depth of 15 feet at low water, and in the Customs Pond and adjacent coal berth to a depth of 18 feet at low water.

This suction dredge was also operated in the inner basin from September 1st to November 28th, removing the silt and accumulations in order to maintain a minimum depth of 25 feet with closed gates.

Grain Elevator No. 2 Additions.—Plans for an additional storage capacity of 2,000,000 bushels to grain elevator No. 2, with a new receiving and shipping house, lofter house, two travelling marine towers on the outer basin, and additional shipping galleries on the St. Charles River front were prepared by the firm of John S. Metcalf Co., Ltd., of Montreal, during last winter, tenders called for in May, and contract awarded to the Atlas Construction Co., of Montreal, in the same month.

The storage bins are circular reinforced concrete bins resting on a pile foundation, and the receiving and shipping house and lofter house are of steel-frame construction, sheathed with corrugated asbestos.

The machinery installation, of the latest design, is being carried out by the Commissioners' own construction staff, under the supervision of the John S. Metcalf Co., Ltd.

The construction of this addition to Grain Elevator No. 2 was started in the latter part of May and sufficiently advanced to allow grain to be placed in the new storage house about the middle of November.

That part of the quay wall on the north side of the outer basin used for the two new marine towers had to be rebuilt from the low-water level to the top of the wharf for a distance of 210 feet in order to provide a solid foundation for the marine towers. The timber crib was replaced by a cellular reinforced concrete structure tied to an anchorage by steel rods. This foundation is now completed, and the erection of the two marine towers will be proceeded with this winter.

An additional 550 linear feet of 4-belt grain gallery is being constructed at the western extremity of the present grain-shipping galleries on the St. Charles River front and will provide an additional berth for grain loading.

Cold Storage.—Improvements in the cold storage plant during the past year consisted of the installation of meat-handling tracks in the main warehouse, replacing the wooden floor in fish shed No. 7 by a concrete floor with suitable drainage, and the construction of an ice storage box in this shed.

Landing Stage No. 18.—To replace the old wooden shed No. 18 which was destroyed by fire in 1927, the Commissioners decided to erect at that location on the breakwater a landing stage for the accommodation of ocean liners carrying passengers and immigrants, at which vessels only stop for a few hours on their inward voyage to Montreal.

Tenders were called for in the month of August and the contract awarded to the firm of A. Deslauriers, Ltd., of Quebec, in the same month.

Work was started in August, and the landing stage, including the overhead passageway connecting with the Immigration Building, will be completed before the opening of navigation next year.

This new structure is a two-storey steel-framed fireproof construction measuring 440-ft. in length and 36-ft. in width. The sheathing is of protected metal, and both sides of the landing stage are provided with continuous sliding doors.

The upper storey is connected to the Immigration Building by a steel-framed overhead passageway, the sides of which are sheathed with protected metal.

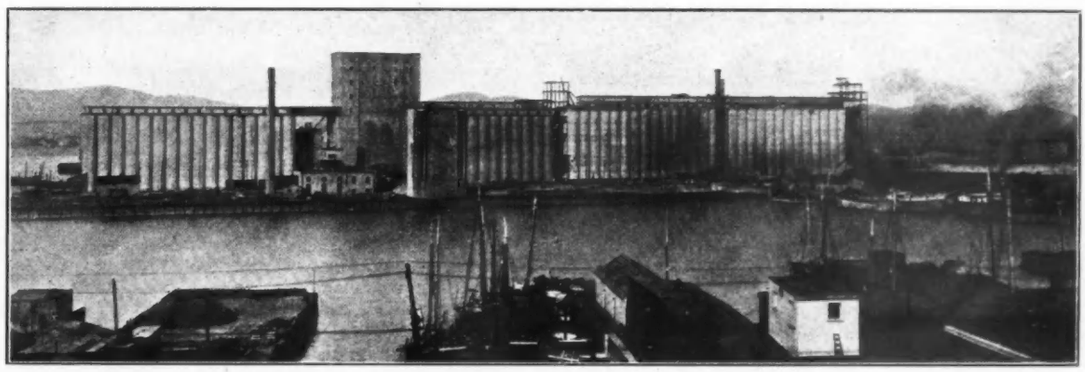
Shed No. 29.—The work of replacing the pedestals supporting the north row of columns in this shed with a continuous reinforced concrete slab was completed last winter by the continuation of this wall through Sections 3 and 4, thus providing a continuous concrete slab on the north side of the shed, which will greatly improve the stability of the shed and the superimposed grain conveyors.

General Improvements.—Works of minor importance carried out during the past year were as follows:—

New foundations and rails for the drawbridge.

Renewing the ties on the bascule railway bridge.

The demolishing of shed No. 22 to make room for new grain storage elevator.



Quebec Harbour Commissioners' 4,000,000 bushel Grain Elevator.

The removal of a portion of shed No. 20 at the south-west corner to make room for new marine towers.

Repairs to roofs of Sheds 25, 26, and 27.

Refilling and reflooring three sections of shed No. 29.

A general rearrangement of tracks rendered necessary by the grain elevator and galleries extension.

The installation of a Durham heating system in the garage and police station, and complete rewiring of garage in metal conduit.

The Commissioners' floating equipment was overhauled, and the plant generally has been maintained in good working order.

The cross-wall bridge was operated for the first time during the season on April 12th and for the last time on December 12th.

The water was retained in the wet dock for the first time during 1928 on April 24th and for the last time on December 4th.

WOLFE'S COVE TERMINALS.

The Federal Government having voted last spring the balance of the money required for the complete construction of the first section of Wolfe's Cove terminals port extension, the Commissioners in the month of May extended the contract of the Northern Construction Company and J. W. Stewart to include the 550 feet of quay wall at the south end of the first section, which was not part of the original contract.

Satisfactory progress was made during the year by the contractors, which can be summarised as follows:—

Dredging.—The suction dredge " General Wolfe " dredged during the year a total quantity of 1,147,043 cubic yards, the material being deposited in the rear of the rip-rap embankment and the quay wall between stations 30.00 and 43.60.

The dredge started operations on May 2nd and stopped work on December 2nd.

During the months of July and August the dredge was loaned to the Chicoutimi Harbour Commissioners for pressing works at Chicoutimi.

Timber Cribs.—Six new cribs were built and sunk in position from station 56.66, running diagonally into the river for a distance of 550 feet.

The total quantity used in the construction of these cribs was 4,062,267 f.b.m. of B.C. fir.

A total quantity of 78,377 cubic yards of stone from Victoria and Chateau Richer quarries was placed in the cribs during the year.

Anchor Rods.—Six anchor rods of 3-in. steel, each 456-ft. in length, have been placed in position between station 30.00 and station 43.60, as called for by the general plan.

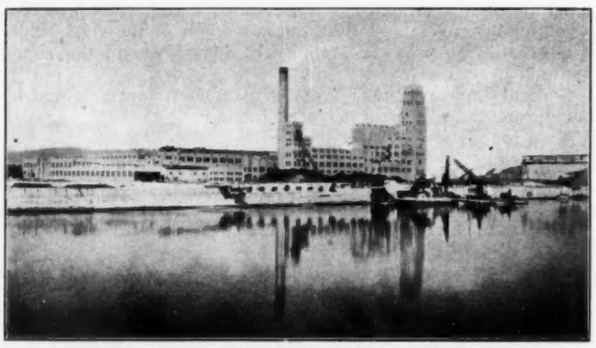
Concrete Superstructure.—The concrete wall on top of the cribs has been constructed during the year from station 30.00 to station 44.09. The 19-ft. reinforced pre-cast concrete blocks are now in place from station 30.00 to station 46.11. The 15-ft. reinforced pre-cast concrete blocks are in place from station 30.00 to station 45.10.

The total quantity of concrete in place amounts to 20,662 cubic yards.

Stone Ballast Back of Cribs.—21,566 cubic yards of stone have been placed on the lower step of the cribs to counterbalance the weight of the concrete wall.

Stone Rip-Rap.—3,290 cubic yards of stone rip-rap have been placed at the foot and back of the concrete wall to reduce the pressure of the filling.

Mooring Posts.—Fourteen mooring posts have been placed in position.



Mills of the Anglo-Canadian Pulp and Paper Mills, Ltd., in the estuary of the River St. Charles, Quebec Harbour.

Rip-Rap Embankment.—The embankment cut-off at station 43.60 is completed to within 60-ft. of the quay wall, which is left open to allow for passage of scows and other floating equipment.

General Remarks.—The contractors have instructions to start work early next spring in order to complete as soon as possible the stone filling of the cribs sunk this year.

The concrete wall will be extended next year over all the cribs now in place.

The programme of work for next year also calls for the building and sinking in position of the cribs from station 19.06 to station 30.00, which will complete the crib works called for in the first section of the Wolfe's Cove terminals.

Another Immense Power Development for the St. Lawrence.

A group of Canadian and United States banking and industrial concerns have placed before the Canadian Government plans for a large navigation and water power development along the St. Lawrence River. According to the proposals made, five locks would be constructed in substitution for the existing 22 locks along the St. Lawrence canals, the Company giving the waterways to Canada without charge or expense, and free from bonded indebtedness, in return for the rights in respect of power development.

The project, if approved, would be undertaken by a Company to be incorporated under the name of " St. Lawrence Waterways and Power Company," and the proposed canals would be in three sections, two in Ontario and one in Quebec.

The first section would be an open-mouthed waterway on the north-west side of the St. Lawrence River from a point near Cardinal, Ontario, to a point near Morrisburg, Ontario, with a lock at the lower end of the same dimensions as those on the new Welland Ship Canal. The canal would have a minimum depth of not less than 30-ft., with a waterline width at the entrance measuring not less than 700-ft., the depth at the narrowest point being not less than 300-ft.

The second section would be a waterway of similar dimensions, leaving the St. Lawrence River at or near Farran's Point and proceeding on the north-west side of the river to Cornwall, where one lock of similar dimensions to that at Morrisburg would transfer an eastbound vessel from the canal to Lake St. Francis.

In the third section the Company would build a waterway of corresponding size from a point at or near Hungry Bay on Lake St. Francis, as far as the Chateauguay River. Here, the land drops, and in order to maintain the level of the water at the height of Lake St. Francis, embankments 54-ft. high and 2,200-ft. apart would be constructed in order to create a reservoir. An eastern-bound vessel would then be transferred to Laprairie Basin by the use of only three locks, Laprairie Basin being at the same level as Montreal Harbour.

The third section would be on the south side of the St. Lawrence River, within the Province of Quebec, and would be about 35 miles in length. As each of the other sections would be about 14 miles long, the total canalisation project is in the neighbourhood of 63 miles, the canals being of a size sufficiently large to permit of navigation by the large freight steamers operating on the Great Lakes. These vessels will be reaching Prescott next year on the completion of the new Welland Ship Canal.

The Company proposes to hand over the waterways to the Dominion Government free of all charges in view of the fact that the promoters expect to recoup themselves by generating hydro-electric power, the revenue from which would cover the cost of the execution of the project. The Company will be willing to pay to the Ontario Government a rental of $1 per h.p. in respect of all electrical power generated from the first and second sections, and a similar rental to the Province of Quebec on all power developed in the third section, which would lie within that Province. The price to be charged to consumers of electricity generated by the promoters would be $15 per h.p. per annum, unless the cost of the completed work, including all electrical installations and interest during construction, should exceed $110 per h.p., in which event there would be a proportionate increase in charges.

The Company is willing to undertake that the Ontario section will be completed within five years and that all three sections of the undertaking will be completed by July 1st, 1940. It is prepared to proceed with surveys and borings during the present year, with the understanding that if the necessary Act is not passed by the Parliament of Canada, the sum expended on such surveys and investigations, not exceeding $250,000, will be refunded.

Other interesting features of the proposal are that the interests behind the St. Lawrence development propose to offer one-half of all the power generated to the Ontario Hydro-Electric Power Commission, and the balance would be used for new industries or sold to existing distributors in Quebec. Compensation would be made for all property, franchises or other rights or assets to the Beauharnois Light, Heat and Power Company, the Great Lakes and Atlantic Canal and Power Company, the Transportation and Power Company, the Canadian Light, Heat and Power Company, the Cedar Rapids Power and Manufacturing Company, the Montreal Cotton Company, and all other companies that may be affected.

ANNUAL DINNER OF THE INSTITUTE OF TRANSPORT.

The Institute of Transport announces that its tenth annual dinner will take place at the Hotel Cecil, London, W.C.2, on Wednesday, March 12th, 1930.

NEW BRIDGE FOR LIMERICK.

The Free State Ministry for Local Government has notified the Limerick Borough Council that a new bridge will be substituted for Old Park Bridge across the Abbey River at Limerick, provided that the Corporation guarantee £6,000. The estimated cost of the bridge is £20,000 and of this sum the Government will provide £14,000. The new bridge will be a permanent structure of concrete, requiring little maintenance and is to have a 24-ft. carriageway and a 6-ft. footpath.

BOMBAY PORT TRUST.

At a meeting of the Trustees of the Port of Bombay held on July 2nd, 1929, the Chairman announced that, subject to final audit, the working result of the financial year ended March 31st, 1929, was a surplus of Rs.5,95,414, as against the budgetted surplus of Rs. 58,595. The revenue receipts for the year, excluding pilotage and special receipts, were Rs.2,80,75,165, or Rs.5,59,565 in excess of budget expectations, and constituted a record in the history of the Trust. Expenditure amounted to Rs.2,74,79,751, or Rs.22,746 only in excess of the budget figure.

In commenting on the satisfactory result of the year's working, the Chairman drew attention to the close approximation between the budgetted and the actual expenditure, which he said had been effected by rigid economy in all departments in spite of several increased grants having to be sanctioned for items not foreseen when the Budget was framed. He also invited reference to the cost of working of the Port Trust Railway, which had been reduced by drastic retrenchment from 27 lakhs six years ago to some 17 lakhs last year. The receipts, on the other hand, had risen from Rs. 23 lakhs to Rs. 29 lakhs during the same period; the net improvement was therefore nearly Rs. 16 lakhs per annum, and the railway was now beginning to cover its overhead capital charges and pay its way.

Latest Developments at the Port of Bordeaux.

By ROGER VEVER, Ing.E.C.P.

Concluded from Page 268.

VERDON DOCKS.

DOCKS to accommodate the largest ships afloat are now being built at Verdon, in the mouth of the River Gironde, and the shipping company La Compagnie Sud Atlantique intends to berth in these new docks giant liners now on the stocks. The landing pier is parallel to the direction of usual currents and stands in a road for long used as a shelter and where the depth of water is rather inclined to increase.

DESCRIPTION OF NEW PIER.

The length of the landing pier will in the first stage of the scheme be of 240 metres only, but later it is to be extended to 600 metres. Ships may berth on both sides. The dolphins extending 50 metres in front of the pierhead will make possible the docking of vessels 300 metres long. The landing pier is connected to the land by a pier 15 metres wide. Both piers are supported by iron beams resting on reinforced concrete blocks.

Data concerning the pier:—Diameter of concrete supports, 4 metres; distance between axes of supports, alongside the pier 20 metres, across the pier 14.80 metres; cross-section of reinforced concrete beams spanning between two supports alongside the pier, 4 metres by 4 metres.

SHED.

One two-storey shed 60 metres long will accommodate both passenger and cargo traffic. Gantry cranes will run on both sides of the shed.

RAIL AND ROAD FACILITIES.

There will be four railway lines, two in the middle and one on each quayside, a double track linking the pier to the shunting station and other land railway facilities. A road 5.50 metres wide, sloping up to the level of the first storey of the shed, is connected to the main Bordeaux highway.

Every possible step will be taken towards speeding up traffic, and it is hoped that passengers will be able to reach Paris only ten hours after disembarking at Bordeaux.

The estimated cost of the Verdon Dock is 80,000,000 francs, with the use of the cheapest building process devised by M. Caquot and described later in this article.

BUILDING PROCESS OF PIER FOUNDATIONS.

Data concerning foundation ground:—Results of soundings made where the pier is to be built showed that on the only suitable foundation ground grey clay is to be found at an average depth of 22 metres below low water, and such a depth makes the use of ordinary piles as foundation impossible and leads to the erection of large supports distant from one another and supporting horizontal beams.

MASONRY PILLARS.

The process used for building the masonry pillars has been urged by its inventor, M. Caquot, Ingenieur des Ponts et Chaussées, and adopted after a series of successful experiments as being much more economical than the use of compressed-air caissons.

DESCRIPTION OF M. CAQUOT'S PROCESS.

A caisson open at both ends is lowered into the water in an upright position and caused to sink through a sand layer till it touches hard ground. The sinking is due to the removal of the sand inside the caisson by means of a water current. Tubes are thrust into the sand bottom, while compressed air is injected and makes the density inside the tube smaller than that outside, thus creating inside the tube an upward water current.

PRELIMINARY TESTS.

During the year 1926 experiments were carried on in the Verdon road with two caissons.

Data concerning the experimental caissons:—Diameter, bottom 7.20 metres, top 4 metres; inside height of bottom bell, 2.50 metres. The top part of the caisson is made of 50 steel-plate cylinders of a total height of 25 metres. The suction tubes number three, with a diameter of .248 metre. The lines of rivets were covered with bands of reinforced concrete 0.10 metres thick as an additional safeguard against leakage. The weight of the caisson out of the water was 153 metric tons.

AIR INJECTORS.

Tests showed that the best air injector is that offering the least resistance to the flow of water. The type adopted consists of a tube 0.215 metre in diameter containing two compressed-air pipes 0.04 metre diameter, closed at the end and pierced near the bottom with holes 6 mm. wide.

Air compressor:—One double-acting cylinder, 52 h.p.; volume of air admitted into the cylinder per minute, 10.165 cubic metres, at the pressure of one kilogramme per square centimetre; maximum air pressure, 7 kilogrammes per square centimetre. Air was sent at will in any of the three injectors through a 0.05 m. flexible pipe. Water and spoil were ejected through a 0.25 m. tube, and the ratio of sand carried away was carefully measured.

DESCRIPTION OF THE TESTS.

Two caissons such as those described above were lowered to the sea bottom, 14.50 metres below low water, and sank about 0.50 m. into the sand under their own weight. Compressed air at the pressure of 3.50 kilogrammes per square centimetre was sent into one of the three tubes during 15 minutes, and the caisson gradually leaned, showing that the sand was actually being removed on that side. The three tubes were then used in turn, so as to keep the caisson as upright as possible during its descent. It was noticed that the depression created inside the caisson through removing the water it contained caused water and sand from outside to pass underneath the caisson blade. This drawback was remedied by pumping water into the caisson and making the inside pressure superior to the outside one.

Table showing Progress of Sinking (First Caisson).

Date	Gain in depth (metres)	Working time (hours)	Gain per hour (metres)
July 17	0.85	3½	0. 24
19	0.45	5	0. 09
21	0.85	8	0.105
22	0.45	5½	0.082
23	0.50	4½	0.111

Total increase in depth: 3.10m. in 26 hours.
Average sinking speed: 0.117m. per hour.

On July 31st the lower blade of the caisson reached the stratum of clay at a depth of 21.02 metres below low water, as was shown by the colouring of the ascending water. Work was carried on for four days more, to see whether M. Caquot's process might be efficient in the case of other ground than sand, but the gain in depth was only 0.08 m. for 28 hours' work. The proposed foundation ground, 21 metres below low water, had been attained.

Ratio of spoils removed by water:—The efficiency at first of 1 to 4 per cent. reachd 20 per cent. on the last stage of the experiment.

EXPERIMENTS WITH SECOND CAISSON.

The second experimental caisson was lowered to the river bottom, 15.50 metres below low water, and sunk through 2.70 metres of sand within 37 hours of work, at an average sinking speed of 0.073 m. per hour, in spite of the loss of time due to measurements.

A fierce storm destroyed this caisson before it reached the clay stratum, as it had not been designed to stand such strain. Nevertheless examination by divers of the broken parts gave valuable information for the building of the actual caissons.

CONCLUSION OF TESTS.

Tests being satisfactory, M. Caquot's process has been adopted. Only four men, all unskilled workers, carried on this experimental work, under the supervision of the Port Engineers. Their only job was to control the air valves and the height of the tubes. The very small part played by labour in this process makes it very economical.

The actual caissons are made of reinforced concrete instead of steel plates. Data concerning the reinforced concrete caissons:—Total height, 21.50 m.; outer diameter of cylinder 4 m.; thickness of cylinder wall, 0.15 m.; diameter of lower part, 7.50 m.; diameter of inner pit, 1.10 m.; diameter of each of the three tubes, 0.25 m.; total weight, 175 metric tons. The inner pit is made of rivetted steel plates and may be used as a diving bell, being airtight, or as a manhole for divers if need be.

A steel-plate cylinder 6.40 m. high and 6.20 m. in diameter is fastened on top of the reinforced concrete caisson and acts as a dam at high tide; it carries tackles and all other requisites at least one metre above the highest sea level.

FOUNDATION WORK.

Caissons are cast on land horizontally and then moved on to a slipway truck and launched after both ends have been closed. A 30-tons floating crane holds the heavier end to keep it perfectly horizontal at a mean draught of 4 metres. The heavy end is released by the crane when deep water is reached. The caisson, floating in a tilted position with a maximum draught of 7 metres, is brought to the sinking place. The crane heaves the lighter end and keeps the caisson upright while a seacock is opened and causes the sinking. The top cylinder acting as a dam is then firmly fastened to the upper part of the caisson.

Three 5-ton winches fitted on the top bridge are used for handling pumping tubes as well as for mooring purposes.

Two air compressors of 100 h.p. were being used while tests were carried on with but one 53 h.p. plant.

Sand will be sucked either by one or two tubes at a time, according to the vertical position of the caisson.

To cope with variations between the pressure outside and that inside the caisson, due to either tide or suction by the tubes, and therefore avoid the passing of sand under the lower blade, water will be forced into the caisson by means of a syphon acting on the same principle as the suction air tube, through injecting compressed air, but in the opposite direction. The pressure inside the caisson will always be maintained slightly superior to that outside.

When the caisson reaches the clay stratum, access to the foundation ground will be made possible by any of the following ways: An open-air descent, after emptying the caisson, if possible; ordinary diving suit; or by using the pit as a compressed-air chamber. Filling concrete into the caisson may have to be done under water till the lower part is cast and closed, unless there is very little water leaking into the empty caisson. It will always be possible to have recourse to the less economical compressed-air caisson process in case of emergency, as the design of the caisson provides for such a contingency.

NEW CHANNEL.

A new channel, 1,000 metres wide, 3,500 metres long, will be dredged to a depth of 10 metres below low water through the sandbanks which lie about 20 kilometres off the mouth of the Gironde. The northern channel, " Passe du Nord," was much used until recently, but the Matelier Channel, " Passe du Matelier," is now the only entrance for large vessels.

The chief advantages of the new channel are as follow:—Owing to its east-to-west direction tidal currents, it is hoped it may maintain its depth unchanged or even deepen it. It is shorter than the Matelier Channel, the length being 3.50 kilometres instead of 5 kilometres, and is well protected from gales. Greater safety is afforded by a straight course, thus avoiding turning in the waves, as is the case with the " Passe du Nord," giving the possibility of establishing land bearings.

Work is being carried on in several parts to prevent sand from silting into the new channel. The opening of the new channel will necessitate the removal of 7,700,000 cubic metres of sand or the suction of approximately 15,000,000 cubic metres of spoils, to be taken away by hopper barges.

DREDGERS.

The sea being usually rough off the Gironde, suction dredgers fitted with a specially devised flexible spout are to be used. Tests have been carried on with waves 2 metres high, the spout acting satisfactorily, but, the deck being too much washed by the sea, the dredger made for port.

Data of Matelier dredger (suction):—Length, 47.50 m.; breadth moulded, 10.20 m.; depth of hold, 4.25 m.; hopper capacity, 400 cubic metres; horse-power, 330; spout 0.40 m. in diameter; efficiency, 2,000 cubic metres per 24 hours.

Data of suction dredge " La Coubre ":—Length 90.50 m.; breadth moulded, 14.80 m.; depth of hold, 6 m.; hopper capacity, 1,500 cubic metres; horse-power, 1,500; central spout, 0.60 m. in diameter; efficiency, 21,600 cubic metres per 24 hours.

Data of suction dredger " Pierre Lefort," now in course of construction in Germany under the Dawes plan for reparations in kind and to be delivered to Bordeaux early in 1930, specially designed to work in rough sea and provided with accommodation for three watches:—Hopper capacity, 2,000 cubic metres; length between perpendiculars, 102.41 m.; breadth moulded, 16.50 m.; depth of hold, 7.95 m.; draught, 5.75 m.; efficiency, 27,500 cubic metres per 24 hours; two flexible spouts, and two semi-flexible spouts; total horse-power, 6,700: chief four-stroke Diesel engines, one of 1,860 h.p. and two of 1,400 h.p.; all appliances driven by electricity, 500 volts d.c. for pumps and propellers, 220 volts d.c. for other purposes, using Ward Leonard patents.

COMPLETION OF NEW CHANNEL.

The new channel will, it is hoped, be completed after two years' dredging with an aggregate efficiency of 51,000 cubic metres per 24 hours and an estimated number of working days of 150 per year.

Lloyd's Register of Shipbuilding.

Returns for the Quarter ended 30th June, 1929.

From the statistics issued by Lloyd's Register of Shipping regarding vessels under construction at the end of June, there is an increase in Great Britain and Ireland of 96,531 tons in work in hand as compared with the figures for last March, and the present total (1,453,906 tons) is 251,296 tons greater than the tonnage which was being built at the end of June, 1928.

About 66,000 tons of the tonnage now in hand in this country are intended for the British Dominions, and about 208,000 tons are for sale or for foreign shipowners.

The tonnage now under construction abroad (1,384,319 tons) is 96,118 tons less than the work which was in hand at the end of March.

Six countries abroad have more than 100,000 tons under construction, viz., Germany, 272,444 tons; Japan, 179,968 tons; Holland, 172,406 tons; France, 139,316 tons; Russia, 124,908 tons; and the United States, 119,098 tons.

The total tonnage under construction in the world amounts to 2,838,225 tons, of which 51.2 per cent. is building in Great Britain and Ireland, and 48.8 per cent. abroad; while the average percentages in the last twelve months before the war were 57.2 for Great Britain and Ireland and 42.8 for abroad.

In Great Britain and Ireland 428,400 tons were commenced, an increase of about 66,000 tons over the similar figures for the March quarter; and 392,888 tons were launched, an increase of 103,000 tons. Similar figures for abroad are 270,597 tons commenced, and 321,877 tons launched, the latter figure showing an increase of 50 per cent. on the March total.

A slight increase as compared with the previous quarter is shown in the tanker tonnage under construction, the present figures being 49 vessels of 338,774 tons, of which 171,040 tons are being built in Great Britain and Ireland.

While in Great Britain and Ireland the tonnage of motorships under construction (590,429 tons) is much less than the tonnage of steamers building, the motor-ship tonnage being constructed abroad reaches 841,791 tons, as compared with 534,166 tons of steamers.

The continued progress in the employment of the internal combustion engine for the larger vessels is indicated by the fact that, while there are now building in the world 59 motorships, each of 8,000 tons and upwards, only 27 steamers of such size are under construction. These figures include 14 motor-ships and seven steamers, each of 15,000 tons and upwards.

The table respecting marine engines unfortunately does not show complete world figures for marine engines of all types, as the figures for steam turbine engines building in Germany are not available; but the table shows that the indicated horse-power of reciprocating steam engines now building or being fitted on board amounts to 571,000 horse-power, while the figures for oil engines aggregate 1,251,000 horse-power.

Tonnage to Lloyd's Register Class.—The pre-eminent position which Lloyd's Register retains amongst the Classification Societies of the world is demonstrated by the fact that the tonnage being constructed throughout the world under the inspection of Lloyd's Register reaches 1,777,011 tons, of which 1,178,998 tons are being built in Great Britain and Ireland.

INCREASED RECEIPTS AT CORK.

An increase of £3,377 12s. 10d. in the amount of dues collected from 1st August, 1928, to the middle of June, 1929, was reported by Mr. Gayer, General Manager to the members of the Cork Harbour Commissioners.

ST. LAWRENCE NAVIGATION AND POWER DEVELOPMENT.

An Order in Council has now been signed approving the agreement between the Dominion Government and the Beauharnois Light, Heat and Power Co., Ltd., enabling that concern to undertake the development of 500,000 h.p. of electrical energy on the St. Lawrence River, at an estimated outlay of $65,000,000.

The immense power scheme of the Beauharnois Light, Heat and Power Company on the St. Lawrence River, it was pointed out some time ago, involves the digging of a canal some 14 miles in length connecting Lake St. Francis to Lake St. Louis to divert 40,000 cubic feet of water per second from the natural channels of the river. The Company's engineers have stated that the commercial use of 40,000 cubic feet per second from the natural channels of the river will justify the installation of 500,000 h.p. in the proposed plant at daily load factors less than unity. The plans are based on the utilisation of an 83-ft. fall of the waters between Lake St. Francis and Lake St. Louis, which would be utilised in one power house near Melocheville on the south side of the St. Lawrence and within 25 miles of the heart of the city of Montreal.

Port of Southampton Topics.

DOCK EXTENSION SCHEME PROGRESS.

Rapid progress is being made with the £13,000,000 dock extension scheme of the Southern Railway at Southampton, and off the Millbrook side of Southampton Water the map is being altered to an extent that would make the district almost unrecognisable compared with what it was a few months ago.

The port of Southampton, though small in point of size compared with Liverpool and London, having about an eighth of the length of quay of either of those ports, has become the premier passenger port in the kingdom, and the bulk of the American passenger traffic is dealt with through Southampton. To enlarge still further the scope and possibilities of the port, a vast area of mudland is being reclaimed. Some of the most powerful and efficient dredgers in the world are engaged in making deeper channels, and it is estimated that in ten years time over 400 acres of mudland in the bay of the River Test will have been reclaimed, the area of reclamation extending from the Royal Pier to Millbrook Point. Such good progress has already been made that eighteen acres have been reclaimed in the short space of time that the first section of the work has been in operation.

The scheme is divided into three parts, and when all are completed the port will have 6,600 feet of additional berth space, giving facilities for the docking of twenty liners the size of the "Olympic."

The work now in progress aims at the reclamation of nearly 200 acres of mudland in the area bounded by the West Station and the Royal Pier. About half of this land will be handed back to Southampton Corporation, and ten acres of it near the pier will be reserved for use as a recreation ground. It is estimated that within the next two years there will be 3,500 feet of quay, with channels dredged to a depth of 45 feet at low tide available for the increasing traffic that is coming to Southampton. A deep-water quay wall, over 7,000 feet long, will be constructed on the face of the reclaimed land, and roads, railway tracks, and acres of shedding will arise on this stretch of marshland, where tradition has it that King Canute sat at the water's edge and ordered the waves back. What Canute could not do modern engineering science has made possible, and within the next few years the sea's reign over this portion of the land will cease.

The construction of the quay wall is a gigantic piece of work. Seventy-eight concrete monoliths, each 45 feet square, will be placed alongside each other. Each has nine vertical shafts running through, and grabs, worked by steam cranes, excavate the ground below the monolith. The huge mass of concrete then sinks of its own accord, and as it sinks to the required depth—about 100 feet—so the quay wall is built up.

A new Dockland is gradually appearing, a Dockland which in its convenience, up-to-dateness, and facilities for dealing with sea-going traffic will be unsurpassed in this country or by few ports in the world.

JUNE TRAFFIC FIGURES.

The Southampton Dock statistics for June, which have just been issued, show, in comparison with the figures for the corresponding month a year ago, that trade was slightly less extensive than in 1928. Out of the ten headings under which the traffic is described nine show decreases, but the falling-off is very slight. The number of vessels coming into the docks fell from 398 to 380, and those outward bound from 400 to 380. The gross tonnage, however, fell by only 12,568 inward and 12,943 outward, the totals being 1,763,008 inward and 1,826,126 outward. The net tonnage inward during the month amounted to 933,856 and outward to 965,351, both slight fallings-off, but only to the amount of 1,932 tons inward and 7,522 tons outward. The amount of cargo handled was less than a year ago by 3,373 tons inward and 2,346 tons outward, the totals being respectively 66,797 tons and 46,405 tons. Passengers showed an aggregate increase, the number arriving at the port going up from 28,493 in June, 1928, to 30,495.

SOUTHAMPTON AND THE "BREMEN."

Southampton has been particularly interested in the feat of the North German Lloyd liner "Bremen" in setting up a new record for the Atlantic crossing. When she came to Southampton in order to be accommodated in the floating dock so that her under-water parts could be cleaned and painted, prior to her maiden voyage, she aroused considerable interest by reason of the many new features involved in her construction, and leaders of British shipping were courteously invited to inspect her. She called here again on her maiden voyage, and embarked passengers in Cowes Roads. Southampton's interest in the "Bremen's" feat is the greater on account of the fact that this port is the home of the Cunard liner "Mauretania," which had hitherto held the record for the Atlantic crossing. It is possible that, given good conditions, the "Mauretania" will test her capabilities against the "Bremen," for she has never been run on her full power since modifications were made in her engine-room. It is said that two additional knots are within her power. It is certain, however, that she can steam faster than ever before if her owners give the Commander and the engineers the permission.

The achievement of the "Bremen" will, to some extent, concentrate attention upon the speed which will be produced by the "Europa" and by the "Columbus." The "Columbus," which was Germany's largest merchant vessel prior to the appearance of the "Bremen" this month, has already been taken off the service in order that she may be refitted with a view to giving her a speed that will approximate somewhat to that of the "Bremen" and the "Europa," with which ships she will next year maintain the company's express service to New York. No indication has yet been given of the speed that the "Columbus" will develop when she has been re-engined, but from the latest sailing list issued by North German Lloyd, it is possible to make an interesting comparison. On her last voyage before overhaul she left Southampton on June 23rd and reached New York on July 1st, an inclusive period of nine days, whereas when she rejoins the service in December she is scheduled to leave Southampton on December 12th and be at New York on the 18th, thus reducing the crossing to six days. So far, no sailing date has been assigned in the latest list to the "Europa," but it is believed that this vessel, which recently suffered severe damage from fire, will be completed in time to take her place in the service for next season's traffic.

Another interesting point is that, in the latest list of sailings, the tonnage of the "Bremen" is given as "about 46,000 tons," although it is now common property that her official tonnage is 49,864.

BIG RUSH OF TOURISTS.

Southampton is affected more by the annual American summer "invasion" than any other port in this country, and throughout July the rush of tourists from the United States to these shores has given Dockland a very busy time. All the big liners of the Cunard, White Star, and the United States Lines have been carrying unusually large numbers of passengers since the middle of June onwards, and to cope with the traffic the vessels have been making quick turn-rounds on each side of the Atlantic.

With much of the rush over for the time being by the middle of July, the big liners have been in turn undergoing their summer overhaul, and the giant floating dock has been in almost continual use for these liners to be lifted for the work to be carried out. All are now back again in regular service.

KIEL CANAL TRAFFIC IN JUNE, 1929.

A report received by the Department of Overseas Trade from His Majesty's Consul-General at Hamburg states that the volume of traffic through the Kiel Canal during the month of June, 1929, showed an improvement over the preceding month, 4,878 vessels aggregating 2,264,098 net reg. tons passing through the canal as against 1,671,309 tons in May. Of the 4,878 vessels, 2,611 were registered as seagoing steamers aggregating 2,079,728 net reg. tons, and of these 2,488 were cargo and passenger steamers aggregating 2,074,577 net reg. tons, 122 tugs of 5,114 net reg. tons, and one fishing steamer of 67 net reg. tons. There were also 1,858 sailing vessels of 99,996 net reg., tons, 190 lighters and barges of 59,284 net reg. tons, and 229 naval and service and pleasure vessels of 25,100 tons. The vessels were loaded as follows:—

60 with passengers; 132 with stone; 207 with coal; 80 with iron; 69 with ore; 651 with timber; 382 with grain; 26 with cattle; 612 with goods in bulk; 1,033 with piece goods; 105 with mixed cargo; and 1,338 empty or in ballast.

Personal enquiries regarding all shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

RADIO COMMUNICATION CO., LTD.

The many friends of Mr. H. Francis White, who is well-known in shipping circles throughout the country by reason of his work as Marine Contracts Manager of the Radio Communication Company, will be pleased to hear that he has been appointed manager of that company as from July 1st.

Mr. White is well qualified, by reason of his wide experience in all branches of the Marine Wireless Industry, for the new position to which he has been appointed.

After 17 years with The Marconi International Marine Communication Company, Mr. White entered the service of the Radio Communication Company in 1920, as their agent in the Newcastle area. Two years later he was appointed Marine Contracts Manager at their Head Office, a position which he has held until his present appointment as manager.

Apart from his business associations, Mr. White is well-known amongst those connected with the sea by reason of his close association with the Seven Seas Club, an organisation of seafarers which is known to the public through its spirited rendering of sea shanties, which have several times been broadcast. Mr. White is honorary pianist to the Shanty Party and has proved an inspiration to its efforts in many ways.

Hull and the Humber.

At the close of the half-year it is usual to take stock of the progress of trade, and so far as Hull and the sister ports of the Humber are concerned the position, except perhaps with regard to the coal export trade, is very little different from a year ago. According to the returns prepared by the Hull Chamber of Commerce and Shipping, imports of wheat and kindred cereals at Hull during the half-year were 554,500 tons, as against 543,300 tons in the corresponding period of 1928, an increase of 11,200 tons, chiefly under the heads of wheat and maize; and of oilseeds, nuts, and kernels 385,000 tons, against 412,300 tons, a decrease of 27,300 tons, the main feature being the marked falling-off in linseed. Nevertheless both flour milling and oilseed crushing have had a fair though not very remunerative half-year.

The timber import season is now in full swing, and the docks at which the trade is done present a scene of great activity. At the end of June the imports exceeded 263,000 loads and were thus 7,000 loads better than at the same date in 1928. A large proportion of the cargoes now arriving consists of Russian wood, of which Hull importers have bought very large quantities. This is shipped from both Leningrad and White Sea ports, and the tonnage taken up early by the Russian wood agencies for its transport was on such a large scale as to cause a shortage of vessels for the Scandinavian trade. Considerably higher freight rates have thus had to be paid from the Baltic generally, and this has also had an effect upon the coal export position. At the Hull docks new arrangements are now in operation for handling the timber imported and appear to be working smoothly and giving good despatch. Considerable quantities of sawn wood sold on " to arrive " terms are being loaded direct from ship to rail for transport inland.

The most noteworthy feature of the Humber trade during the half-year has been a very substantial expansion of coal exports, in which all the ports have shared. The six months' total is 2,861,484 tons, comparing with 1,361,424 tons in 1928 and 1,006,415 tons in 1927. The increase over the January-June period of last year thus exceeds 1,500,000 tons, being equal to 110 per cent. In addition, there was shipped foreign from Boston and Lynn 207,900 tons. These figures do not include bunkers to vessels in the foreign trade, which are approximately 1,250,000 tons; nor coastwise shipments. This splendid increase marks the beginning of a return to the Humber as a great coal exporting centre, and has been brought about by the vigorous handling of the Yorkshire and Midlands (or " Five Counties ") Coal Marketing Scheme, under which export coal is subsidised out of a pool provided by a voluntary tax on all coal raised by collieries subscribing to the scheme. The amount of trade secured in foreign markets, however, is so large as to outrun the money in the pool, and a temporary suspension of the subsidy was determined upon in respect of all new business after June 28th until the position could be reviewed. Subsequently a reduced subsidy was substituted, and this has enabled trade to be resumed.

Some perturbation has been caused in shipping and commercial circles by the intimation that the London and North-Eastern Railway Company, the owners of the Hull docks, were about to make application to the Railway Rates Tribunal to increase their dock charges at Hull after October 1st from 60 per cent. above pre-war to 75 per cent. Sir Ralph Wedgewood, in a letter stated that the application was decided upon after very careful review of all the circumstances and because the additional powers were necessary to enable the railway company to work and maintain efficiently their dock undertaking and to ensure that their net revenue therefrom was not unduly low. The Hull Chamber of Commerce and other local interests are to place the matter before the Traders' Co-ordinating Committee and to oppose to the fullest extent of their power any increase, which they think would be inimical to the best interests of the port. The view is that there ought to be a reduction rather than an increase, in order to put Hull in a fair position in relation to the Tyne and elsewhere where dock charges have quite recently been lowered. The Humber Conservancy dues, it is pointed out, have been brought down, and efforts are also being made to obtain a modification of the pilotage charges. In these circumstances it would seem somewhat anomalous if dock charges were to go up.

The latest distinguished visitor to Hull has been Sir Herbert Gibson, K.B.E., of Buenos Aires, and a prominent member of the Anglo-Argentine Community. He made a tour of the docks under the direction of Mr. E. V. Taylor, District Goods Manager of the L.N.E.R., and Councillor Frederick Till, J.P., chairman of the Hull Development Committee. He called upon the Lord Mayor and was assured of every assistance in his desire to investigate the possibilities of the shipment of Argentine meat and other produce to British ports other than London. Sir Herbert had luncheon with the Sheriff at the Guildhall and spoke of the advantages of Hull, which he said might be a much more important port than it already is for the export of goods to the River Plate by reason of its excellent dock facilities and its cheap port rates as compared with other United Kingdom ports.

A Finnish delegation representing the Central Chamber of Commerce, Helsingfors, arrived at Hull in June en route for London to be the guests of the Anglo-Finnish section of the London Chamber of Commerce. On the Sunday they motored to Scarborough and Whitby, and on their return were entertained to dinner at the Royal Station Hotel by the Finnish Consul on behalf of Messrs. John Good and Sons, who have been agents at Hull for the Finnish trade since 1883. Mr. W. Minnitt Good presided.

The Humber Conservancy Commissioners have approved of the carrying out by the London and North-Eastern Railway Company of the preliminary work, the driving of trial piles, making trial bore holes, and levelling the foreshore, in connection with the proposed new dock at Grimsby, on condition that the railway company accept the responsibility and to the Board being advised before such works are commenced. The Board have also approved of open pile work to be substituted for a concrete wall in the proposed bridge of the Hull Corporation across Hedon Haven. It was reported to the Board that the Marconi Wireless Telegraph Company are making further enquiries with regard to the system in use for calling up German lightships, and that when the clear-weather transmission of the Spurn Lightship wireless beacon fog signal is in operation the Marconi Company will obtain a number of reports as to its strength. The Engineer expects to hear shortly from the British Wireless Marine Service (Hull) with regard to the cost of inclusive maintenance.

The Hull Corporation have leased from the War Office an excellent site for a seaplane base at Paull, in the vicinity of the aerodrome site at Hedon recently purchased by the Corporation. The site is the most accessible on the whole of the river and provides deep water close to the shore, clear and available at all states of the tide. There are reasonable facilities for the erection of a slipway down to the water's edge, and associated with the site four and a half acres of land. There is already in existence a pier suitable for the embarkation and disembarkation of passengers and for the carrying of a pipe line for fuelling purposes. The lease is for a period of 21 years, with the option of renewal. The land at Hedon purchased for an aerodrome is now being levelled and is expected to be ready by October, when the city will be holding a Civic Week, during which an air display will be given. Of the 200 acres bought 68 acres will be let to the National Flying Services, Ltd., for a period of 21 years at a rental of £200 per annum for the first five years, plus a percentage of the landing fees taken by the lessees, which will be progressive and in the 13th and subsequent years will amount to 25 per cent.

A well-attended conference of the various local authorities in the East Riding and North Lincolnshire has been held at Hull to consider the proposal for tunnelling or bridging the river Humber between Hull and North Lincolnshire, and various preliminary matters were arranged. Representations have been made to the Minister of Transport that some such scheme should be considered for inclusion in the Government's plan of unemployment works, and Mr. Herbert Morrison, it is stated, has given instructions to his Department for plans and a report to be made on the proposition.

EXTRA CATTLE BOAT FOR WATERFORD.

It was stated at a meeting of the Waterford Harbour Board that there was every likelihood of an extra cattle boat being put on between Waterford and Fishguard during the busy cattle season.

NEW DREDGER LAUNCHED.

Wm. Simons and Co., Ltd., Renfrew, launched on 8th July, 1929, complete with all machinery on board and with steam up ready for work the barge-loading bucket dredger, " Barao de Maua," built by them to the order of the Government of the State of Pernambuco, Brazil.

The vessel, which has been specially designed for work at Pernambuco, is well equipped for dealing with all classes of material, and is capable of dredging to a depth of 46-ft. below water level. A set of triple expansion engines supplied by steam from two multi-tubular boilers constructed for a working pressure of 160 lbs. per square inch, drives the dredging machinery, the gearing wheels of which are all machine cut. Suitable clutches are provided so that the engines may be engaged with or disengaged from the dredging gear or the propelling gear, as required.

The engines are arranged to give two speeds of buckets so that a constant piston speed is maintained when the dredger is working either in soft or hard ground. The deck machinery includes steam gear for raising and lowering the bucket ladder, powerful bow and stern winches for manœuvring purposes and for regulating the cut of the dredger while at work. Comfortable cabins are provided for officers and crew.

The dredger is built under Lloyd's Survey to their highest class.